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Natural Gasoline Convention

15 Cents

The OIL and GAS JOURNAL

PRODUCING REFINING ENGINEERING MARKETING

Published Every Thursday TULSA, OKLAHOMA, MAY 23, 1929 $6.00 a Year

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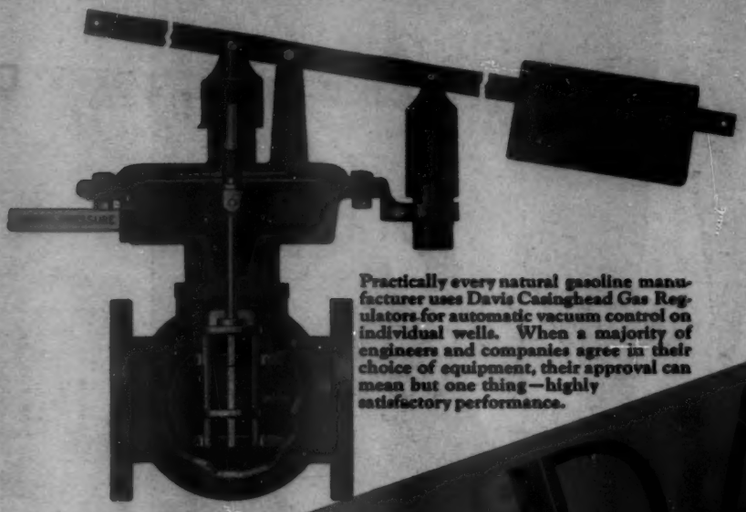
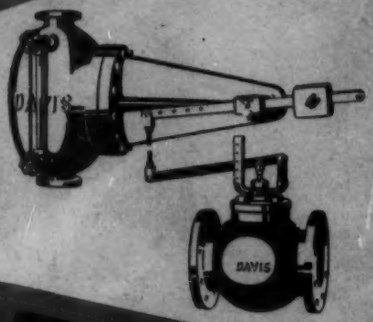


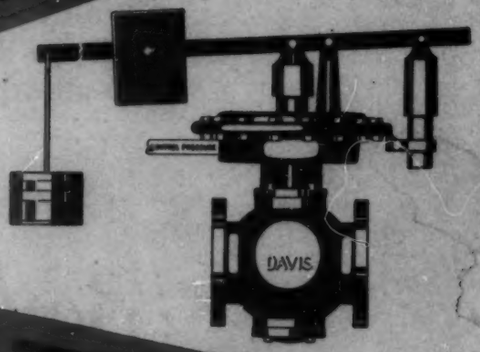
Practically every natural gasoline manufacturer uses Davis Casinghead Gas Regulators for automatic vacuum control on individual wells. When a majority of engineers and companies agree in their choice of equipment, their approval can mean but one thing—highly satisfactory performance.

DAVIS AUTOMATIC VALVE SPECIALTIES



The Davis Float Box with balanced valve gives outside control of liquid levels in closed tanks. There is a direct connected type and a remote control type for every operating condition.

The Davis Balanced Supersensitive Gas Relief Valve accurately relieves tank vapors into a vacuum line and keeps the vacuum out. It is truly Supersensitive.



The Davis Gas Pressure Regulator maintains any pressure reduction automatically—reliably.

Let Davis Specialists engineer your automatic valve applications.

G. M. DAVIS REGULATOR CO.
409 Milwaukee Avenue
Chicago, Illinois

WESTCOTT & GREIS, Inc.
Sales Engineers
Tulsa Los Angeles Dallas

O&GJ 5-23 Gray

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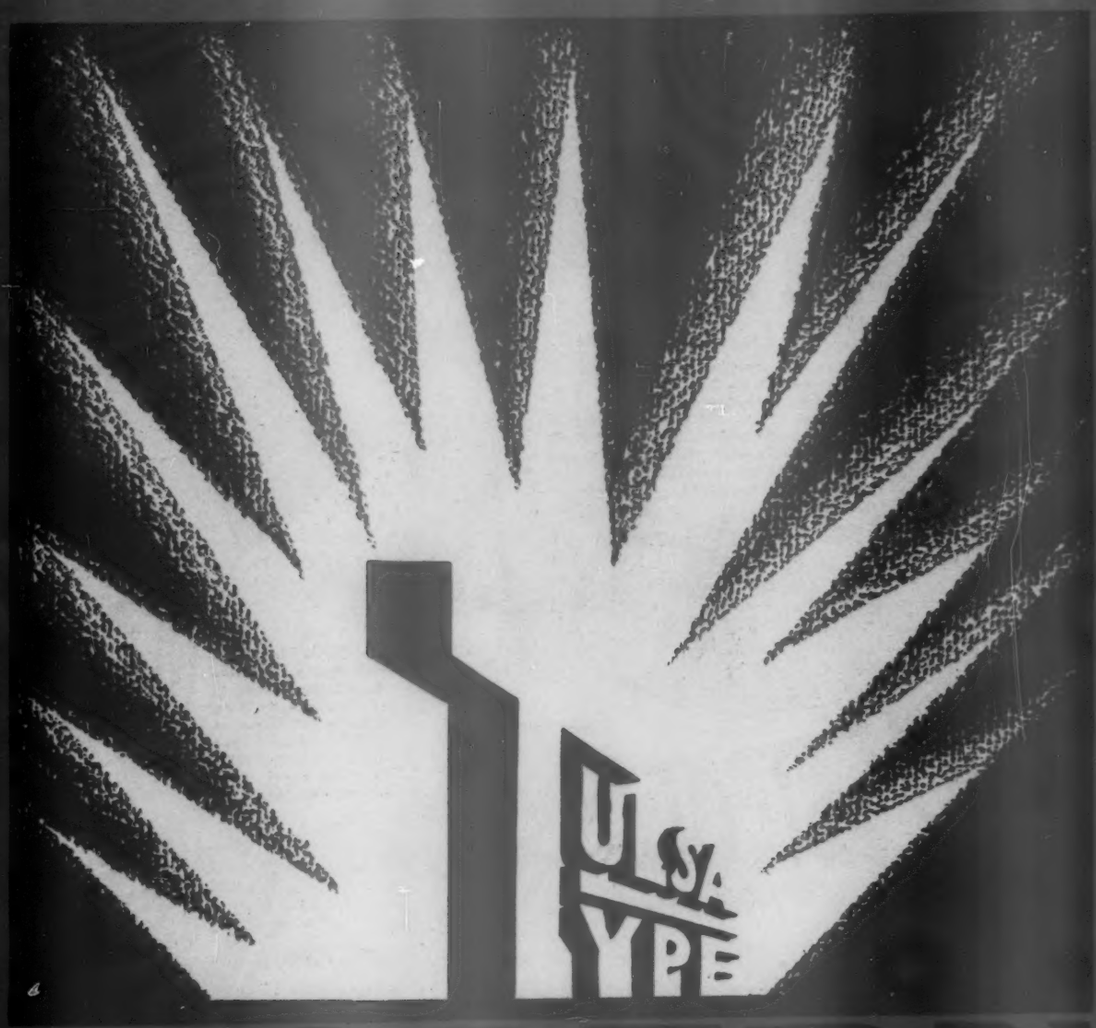

MODERN

Built to meet the needs of today—*not yesterday*
Tulsa Type Equipment expresses the latest developments
in absorption and distillation equipment for the
Natural Gasoline Industry

TULSA
Boiler & Machinery Co.
TULSA OKLAHOMA

WALWORTH "200"

A Body of Bronze with a Heart of SIGMALLOY*

*A nickel-copper alloy

for 200 lbs. Working Steam Pressure *at* 500 *deg. F*

A heavy body of tough bronze; a heart of *Sigmalloy 222, that extremely hard, close-grained metal that defies, for a much longer time than ordinary valve trim materials, the destructive corroding effects of acids and alkalies commonly present in refinery pipe line contents. This fine "heart" of the valve, when it finally succumbs to long, severe service, can be easily and quickly renewed. A new seat and disc, inserted in a few minutes, prolongs the life of the valve almost indefinitely.

Write today for a copy of our new booklet on Walworth High Grade Bronze valves. It tells all the facts about the Walworth 200 and others in our complete line of quality valves, including list prices and dimensions.

WALWORTH

Walworth Company, General Sales Offices: 51 East 42nd St., New York
Plants at Boston, Mass.; Kewanee, Ill.; Greensburg, Pa., and Attalla, Ala.

Distributors in Principal Cities of the World

Walworth Company, Limited, 620 Cathcart St., Montreal, P. Q.
Walworth International Co., 11 Broadway, New York, Foreign Representative

The Oil and Gas Journal, issued weekly by The Petroleum Publishing Company, 114-116 West Second Street, Tulsa, Oklahoma. Subscription price $6.00 a year; 15 cents a copy. Entered as second-class mail matter December 15, 1911, at the post office at Tulsa, Okla., under the Act of March 3, 1879.

Must you have special tools for Regulator Repairs?

A VISE, a wrench, a screwdriver—essential equipment of even an apprentice's workbench—are all you need to take apart and reassemble the Oxweld Stem Type Oxygen or Acetylene Regulator.

These Oxweld Regulators are the last word in regulator design. They are simple—few working parts. They are rugged—no delicate mechanism to get out of order. They are dependable for any volume of gas under almost any atmospheric condition.

Reliable
Economical
Long Lived

Typically Oxweld

OXWELD

WELDING AND CUTTING APPARATUS AND SUPPLIES

OXWELD ACETYLENE COMPANY

Unit of Union Carbide and Carbon Corporation

UCC

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CHICAGO Carbide and Carbon Bldg.

SAN FRANCISCO: Adam Grant Building

Fight the WASTE of bottom water with EAGLE LEAD WOOL

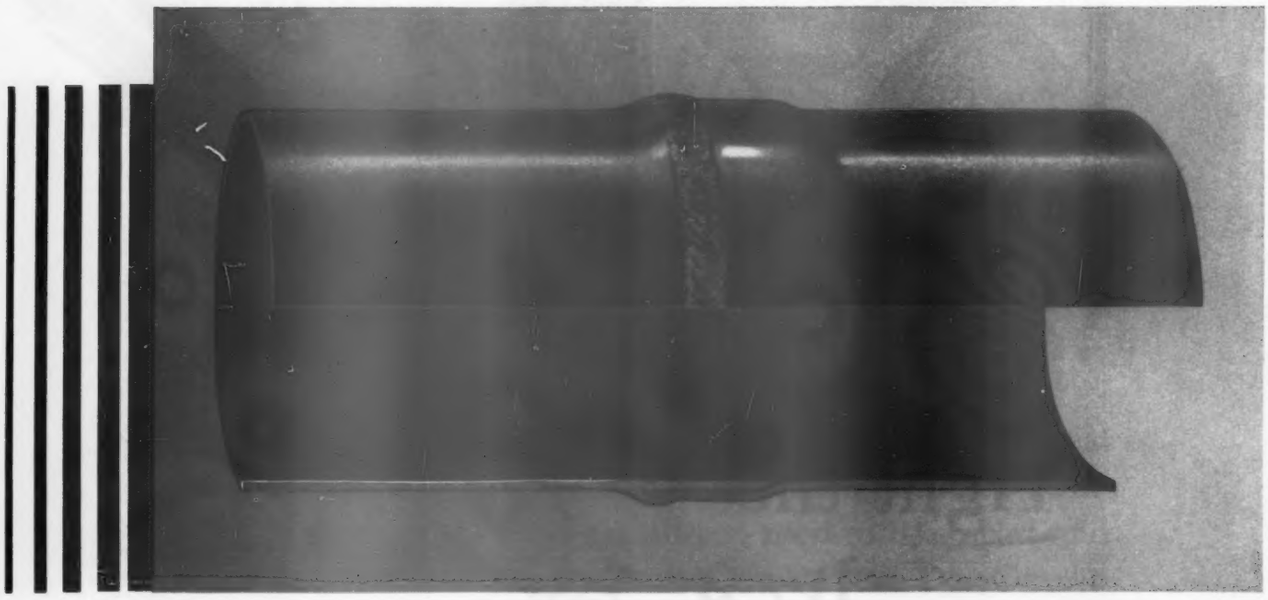
Bottom water—one of the serious causes of production wastes in many oil fields—is plugged off instantly by Eagle Lead Wool. Producers have saved many thousands of barrels by using this effective conservation weapon. Stocked by all important supply houses—with cartridge containers in sizes to meet all requirements. Write us for free folder and further information.

The Eagle-Picher Lead Company · Chicago · Joplin · Cincinnati.

The light, low-cost metal for your sockets

Eagle Rope Socket Metal was designed especially for all socketing purposes. 35% lighter than Number 4 Babbitt—4 times as hard (Brinell hardness 64). Tough—will not crack or break under shocks and strains. At your dealer—or write us for free folder.

The SMITHWeld Bell and Spigot Joint



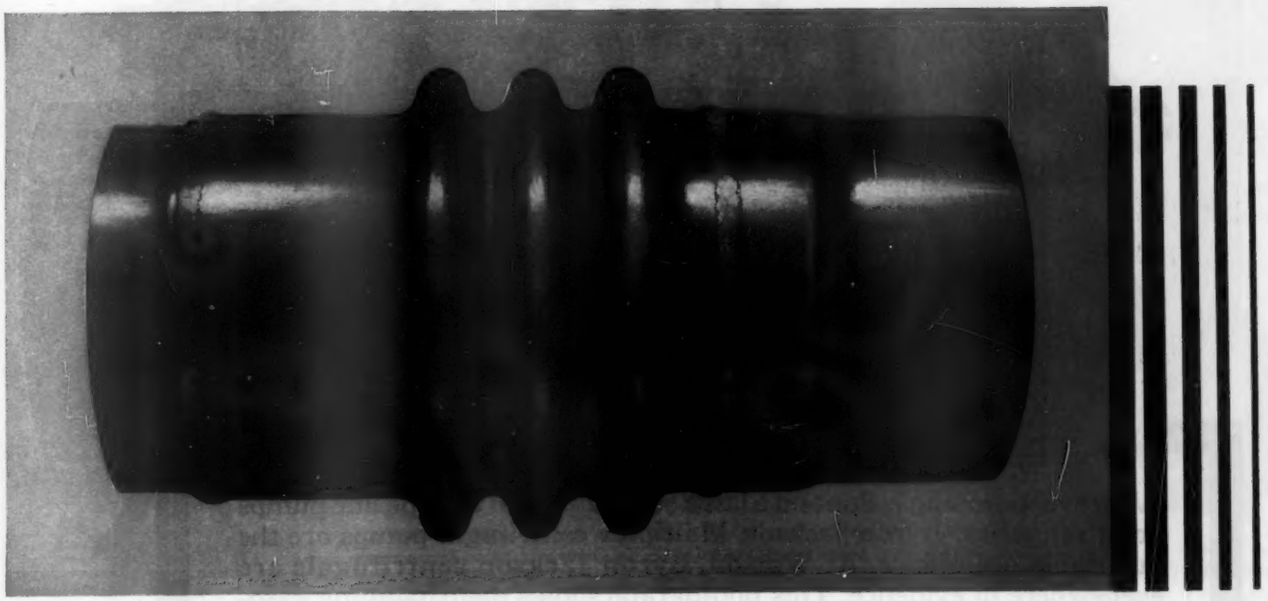
A new joint for Pipe Line Construction that offers many advantages including: ease of stabbing; correct stabbing distance; weld in tension or compression — never in shear; elimination of "icicles"; 100% joint efficiency in the field weld. In combination with the SMITHWeld Expansion Joint it makes all welded construction the ideal construction for pipe lines.

SMITHWELDED

A. O. SMITH CORPORATION

Oil and Gas Field Products Division

The SMITHWeld Expansion Joint



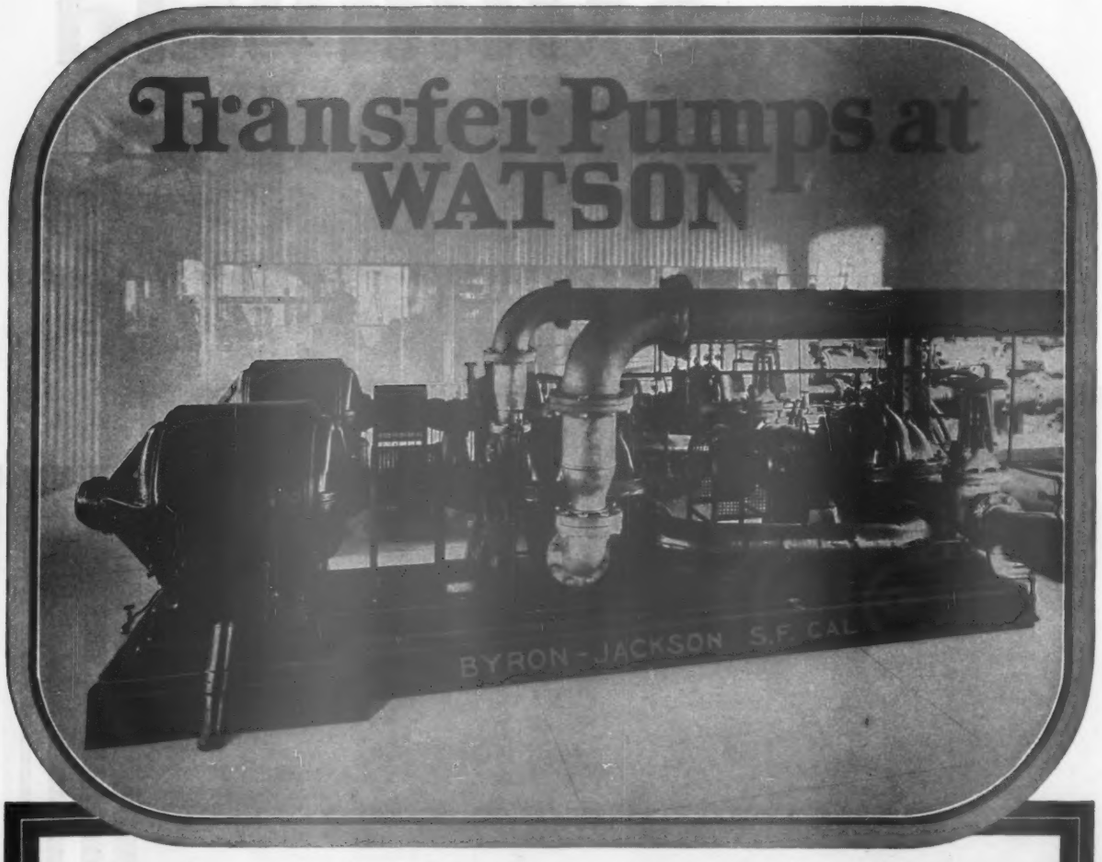
Another new joint for Pipe Line Construction that overcomes the oldest and most persistent trouble encountered in large diameter all-welded lines—that is, the tendency to part or buckle with contraction and expansion.

The design and the manner of application of these joints to steel pipe and the methods of their manufacture in steel are decidedly new.

LINE PIPE

General Offices: Milwaukee, Wisconsin

District Offices at: New York — Pittsburgh — Tulsa — Houston — Los Angeles



Wherever pumping is done on a large scale, through oil pipe line pumps or in refineries, Byron Jackson Multiplex centrifugal pumps are the invariable preference. At Watson, Byron Jackson centrifugals are everywhere in evidence. This photograph shows them handling gasoline in the ten-mile line to Los Angeles Harbor. Byron Jackson Multiplex pumps are also employed on the 100-mile line from Ventura to Wilmington, the longest natural gasoline line in the world; also in many pipe lines and refineries in various domestic and foreign fields. In the growing dependence placed on Byron Jackson equipment the world over by petroleum engineers is seen the reward of this company's policy in designing durable pumps to meet the needs of the industry.

SINCE 1872

BYRON JACKSON PUMP CO.

Factories: BERKELEY, Los Angeles, Visalia
Branches: San Francisco, Portland, Salt Lake. Dallas, Phoenix

BYRON JACKSON

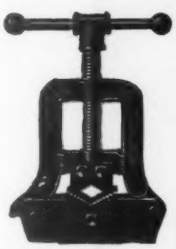
CENTRIFUGAL PUMPS FOR EVERY SERVICE

Nye thin blade cutter wheel, made to fit all standard makes of pipe cutters, and guaranteed against breakage in use. Made both in smooth and knurled edge.

Nye (Toledo Type) Chasers Fit Nos. 1, 1A and 2 Nye (Toledo Type) Stocks

Each set is guaranteed in every particular. Will cut much easier than other similar dies.

No. 1, 1" to 1½"	$ .75 per set net
No. 1, 2"	1.25 per set net
No. 2, 2½" to 4"	3.60 per set net



Nye Type Self-Locking Vises

No. 00	$2.82 net
No. 10	3.34 net
No. 20	5.00 net
No. 30	7.33 net

Nye Saunders Pattern Pipe Cutter

The Nye Saunders type pipe cutter is equipped with Nye knurled wheels. All parts are interchangeable.

No. 1	$ 2.00 net
No. 2	3.00 net
No. 3	7.33 net
No. 4	12.00 net
No. 5	18.67 net

A LETTER FROM HARRY G. NYE

TO THE OIL MEN OF THE U. S. A.

Friends:

A banker friend of mine—I never tried to borrow any money from him, that's how we happen to be friends—has asked me to write a few words in the bankers' defense, if any. He says that bankers are very much misunderstood, although none of them ever spoke to me yet so that I didn't know what he meant.

A bank is a place where you put your money, so you can borrow it back again when you need it, if the bank still has it, and will let you have it. The bank pays you a certain per cent, if you leave it there long enough, and charges you a certain per cent, if you bring it back soon enough. But if you think it's the same per cent, you'd be surprised.

When you deposit your money the banker gives you a little book in which is set down how much you have put in. But this book doesn't mean what you think. It doesn't promise a darn thing. A bank never breaks any promises, because it is careful *never to make any*. This book is just to show you how much you lose if the bank busts.

Of course, when you go back to borrow money at the bank, the money the banker lets you have, if by any chance he does, is not the same actual money you recently deposited. The banker has already lent that to somebody else. What he lets you have is the money some other fellow just brought in. And so on.

You remember the man in the circus who used to keep seven balls in the air and one in his hand? Well, that's where the banker got his big idea. He always has some money on hand, but the other seven-eighths is somewhere else. The banker simply figures that all of us won't all want all our money all at the same time. But, darn it, sometimes we do.

However, a bank is one of the two best ways to save money. The other is to buy Nye Tools; they work so much faster and easier and last so much longer than all others that they save an oil man a lot of money.

Bank on us,
HARRY G. NYE.

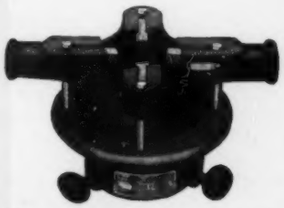
Copyright, 1929, by HARRY G. NYE
All Rights Reserved

Otherwise Known as
THE NYE TOOL & MACHINE WORKS
4120-30 Fullerton Ave., Chicago, Ill.

Nye Drop Forged Pipe Cutter

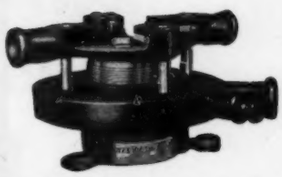
Equipped with
Nye Knurled Wheels

No. 1-A Complete	$2.75 net
No. 2-A Complete	3.30 net
No. 3-A Complete	5.50 net



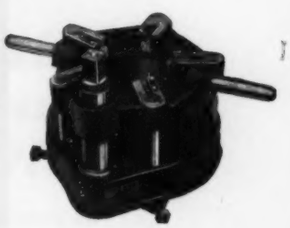
The rugged construction and few working parts account for the simplicity and durability of these Nye Receding models. They do the work easily and efficiently.

No. 1 Nye Receding Pipe Threader, complete ..... $9.60 net
West of Rocky Mountains $10.80



The No. 1A is the same as the No. 1 except that it is equipped with a ratchet for work where space is restricted.

No. 1A Nye Receding Pipe Threader, complete ..... $12.00 net
West of Rocky Mountains $13.50



Nye No. 2 (Toledo Type) Geared Threading Device Improved

Capacity 2½ in. to 4 in. inclusive.
Net price complete $50.00
West of Rocky Mountains $5.00
FREE TRIAL—ABSOLUTELY GUARANTEED

Nye Three-Wheel Pipe Cutter, Barnes Type

Equipped with Three Nye Knurled Cutter Wheels

No. 1	$ 2.48 net
No. 2	3.30 net
No. 3	5.50 net
No. 4	11.00 net
No. 5	16.50 net
No. 6	22.00 net

Concerning *The drilling of* STRAIGHTER hole

A great deal of discussion is taking place in the oil fields on the subject of drilling straight hole, and the consensus of opinion leads to the conclusion that Bettis Protectors are one of the principal factors in digging straighter.

These protectors serve as a guide and insure straighter drilling.

Removal of excessive friction, due to the perfect lubricating qualities between the drill pipe and casing, permits more sensitive control of the drilling bit by the operator and prevents, to a large extent, excessive abuse upon the drill.

Where drilling inside of casing the Protectors contact the casing and prevent the drill pipe from touching it. But even in open formation the Protectors assist in keeping the drill pipe in alignment and keep the drill pipe, joints and collars from wearing down against the wall of the formation.

Bettis Protectors are seamless, hingeless, add no metal to the hole and relieve the equipment of much wear and tear.

Ask any driller who has used them.

Catalog upon request.

Patterson · Ballagh Corp.
Insurance Exchange Building
Los Angeles

Mid-Continent Distributors:
Bettis Sales Co., 616 Public National Bank Bldg., Houston

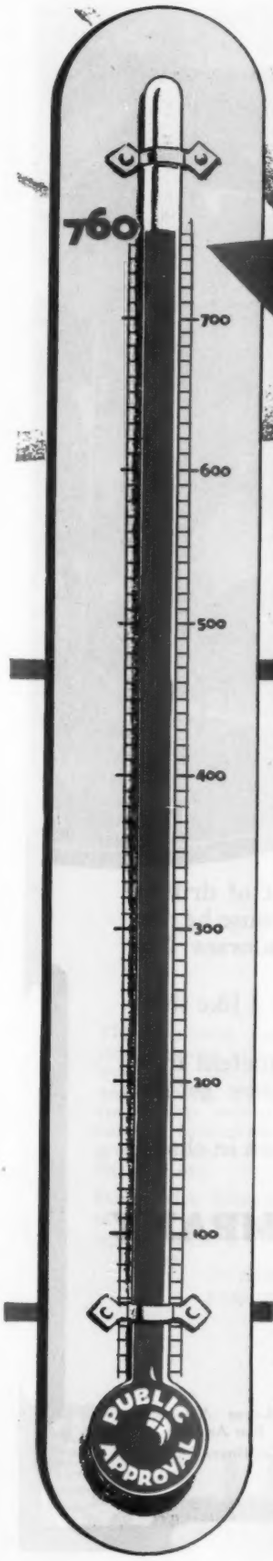
New York Office:
39 Cortlandt St.

Carried in stock at
Los Angeles, Santa Fe Springs
Ventura, Bakersfield, Coalinga
Long Beach, Tulsa, Houston
Wink, Texas, New York City

BETTIS PROTECTORS
The genuine anti-friction Rubbers

Fully Patented

"Beat bet yet"



Warming Up!

DIAMOND 760 MOTOR OIL

Public Acceptance Exceeds all Expectations

Are you profiting by the success of this new heat-resisting 760° Motor Oil?

DIAMOND 760 Motor Oil is the first on the market to meet all the requirements of the modern, high speed motor. It "stands up" at temperatures as high as 760° F.— furnishes any motor with a wide margin of safety. DIAMOND 760 is an "evaporation-less", selected 100% pure paraffin base lubricant.

Sales are mounting but much desirable territory is still open. Mail the coupon at once to find out if the liberal Diamond franchise is available in your community. You will be backed to the limit with advertising and sales aids.

MID-CONTINENT PETROLEUM CORPORATION

General Offices: Cosden Bldg., Tulsa, Oklahoma

Chicago Kansas City St. Louis Tulsa Waterloo

Here's the Key to the *new* "DIAMOND 760" Profits!

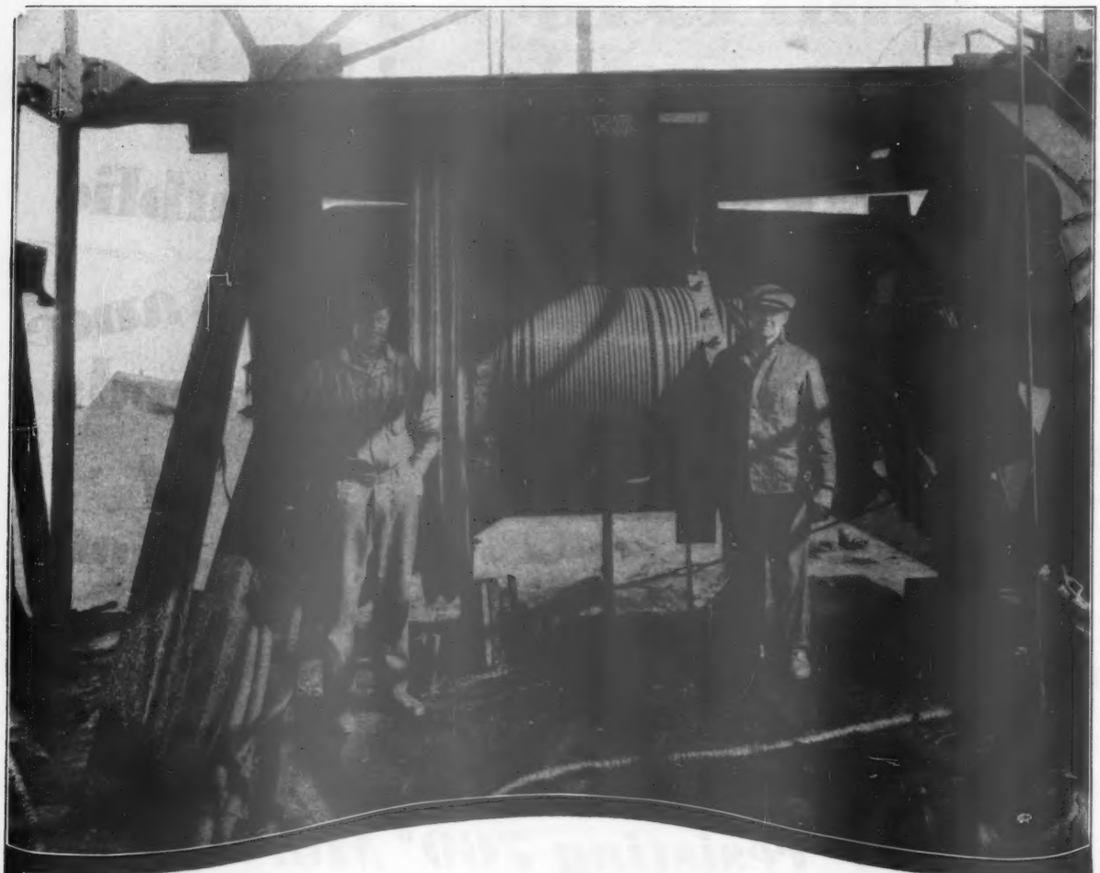
Mid-Continent Petroleum Corporation
Cosden Bldg., Tulsa, Okla.

Gentlemen: Please send me full particulars about your DIAMOND 760 Motor Oil franchise.

Name_____

Address _____

Town_____ State_____



Mr. Frum, whom you see here, on the right, is doing a lot of drilling around the St. Louis district. He uses Williamsport lines because he prefers them. Mr. Haskins, tool dresser, is with him and endorses Mr. Frum's opinion.

Mr. Frum says, "I have never run a bad Williamsport line. I like them because they do not kink and yet they are very pliable."

We like to have Williamsport lines in the hands of such competent men. They know how to handle a good line and consequently they get the best service from it.

A Williamsport service warehouse is near you with careful men in charge who know how to render good service.

WILLIAMSPORT WIRE ROPE COMPANY

Main Office and Works: Williamsport, Pa.

General Sales Offices:
122 S. Michigan Ave., Chicago, Ill.

Oil Country Sales Offices: Williamsport Bldg.,
Fourth and Midland Valley Tracks, Tulsa, Okla.

Our Own Warehouses:
Houston Shidler Blackwell Maud Ardmore Holdenville Bristow Wichita Falls Smackover Arkansas City
Shreveport Casper Lewistown Electra Odessa Seminole Borger Pampa Wink San Antonio
Distributed by the Bridgeport Machine Company, Wichita, Kansas, and all of their Mid-Continent Branches

The Largest Exclusive Wire Rope Plant in America

Industrial executives are agreed that profitable operation comes only from intelligent application of sound methods and modern equipment which will reduce production costs.

But even in the best equipped plants expensive sources of waste sometimes pass unnoticed, as their cost is often lost in the general overhead expense.

Leaky valves and cocks on steam, gas, air and liquid lines are frequent offenders in piling up these hard-to-find losses — small in themselves, perhaps, but in the aggregate amounting to many dollars annually.

Investigate in your plant and if you find any of these spendthrifts—out with them.

Install Lunkenheimer Valves in their stead and you will have adopted an effective method of turning these losses into profit. They remain tight in service and can be relied upon for the maximum degree of satisfactory performance with minimum maintenance expense.

The complete Lunkenheimer line includes valves of bronze, iron and steel; gate, globe, angle, check, blow-off, non-return, pop safety and relief valves; lubricators, oil and grease cups, cocks, whistles, fittings, etc.

Descriptive literature on any of these products will be sent upon request.

Distributors located in all industrial centers carry Lunkenheimer Valves and Engineering Appliances in stock. They will fill your requirements promptly.

THE LUNKENHEIMER CO.
"QUALITY"
CINCINNATI, OHIO, U. S. A.
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PITTSBURGH SAN FRANCISCO LONDON
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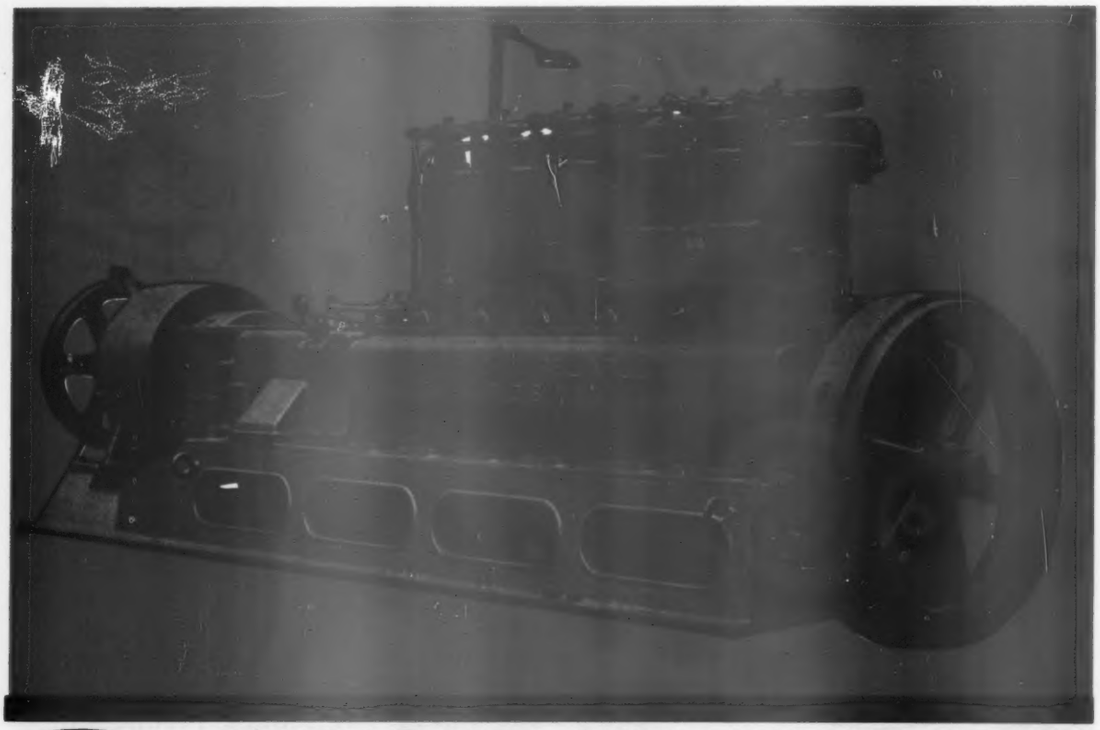
LUNKENHEIMER
VALVES

22-65-91



The WRIGHT HEAVY DUTY "BIG ENOUGH TO

Back of the Wright "Big Six" Drilling Engine stands over 21 years' experience building heavy duty engines exclusively —for marine duty, dredge and power shovel work, as well as in the oil fields. For over 20 years an engine of this type has been used continuously on a packet plying between Owensboro, Ky., and Rockport, Ind., giving satisfactory service year after year.

DESIGN AND MATERIAL

The Wright Oil Field Engine, operated by natural gas or gasoline—has all of the advantages of steam, and none of the disadvantages; it drops the tools to the satisfaction of the most critical driller. Its unusual performance is due to the extremely high torque developed at low speeds—a great advantage in handling the heavy bailers, tools and long strings of pipe in present day drilling.

It is correct in design in every detail. For greatest operating economy the valve-in-head design is used. The Bed Plate is of cast steel; engine base housing, gear box, end pedestal, fly-wheel, heads and manifold are cast iron and semi-steel. Cylinders are hard chrome-nickel alloy cast iron. Pistons are aluminum alloy, fit to close limits. Small parts are alloy steel or cast steel.

CLUTCH AND REVERSE GEAR

The exclusive Wright all-metal, multiple disk clutch, operating in a bath of oil, with an oil pump forcing the oil through the internal parts, overcomes clutch troubles found in the ordinary drilling engine. The Wright clutch is 300% oversize—having over 3 times the area of the average drilling engine clutch.

These features insure a much smoother action, much longer life and practically no "shut down time". With the Wright clutch, you can run and pull pipe with no more shock than when using steam. Reverse Gear is planetary type.

The BRIDGEPORT

Branches Throughout the Oil Fields

General Offices

Wichita,

SLOW SPEED DRILLING ENGINE

STAND THE GAFF"

NEUTRAL BRAKE

A neutral brake of ample capacity for holding casing or tools is installed on the end of the pulley shaft and operated from the derrick floor independent of the clutch.

CARBURETOR

The combination gasoline and natural gas carburetor is arranged to burn either fuel separately, or where there is only a partial supply of gas, a combination of gas and gasoline can be burned. This carburetor of our design and manufacture was produced only by repeated tests in the field, and will take care of all changes in speed and give all that is desired in flexibility of operation.

PRINCIPAL SPECIFICATIONS

H. P.	150
Bore	7½"
Diameter Crank Shaft	3½"
Number Main Bearings	7
Length over all	15 ft.
Width over all	3½ ft.
R.P.M.	150 to 700
Stroke	9"
Piston Displacement	2385.66 cu. in.
Total Length Main Bearings	43"
Height over all	5 ft.
Shipping Weight Complete	14,000 lbs.

REGULAR EQUIPMENT

Engine complete on steel sub-base. Combination gas-gasoline carburetor, neutral brake with derrick floor operating pedal, fly wheel and two extra rings, force feed lubricator, clutch oil pump and filter, engine cover, sheave wheel, gasoline tubing, extra carburetor springs, high compression plates, grease gun, oil cans, metal tool box, complete set of socket and end wrenches, tools, foundation plan, and set of instruction bulletins. The Wright Oil Field Engine is also made in a 4-cylinder size. Write the Home Office, or any of our branches for prices and complete specifications.

MACHINE COMPANY

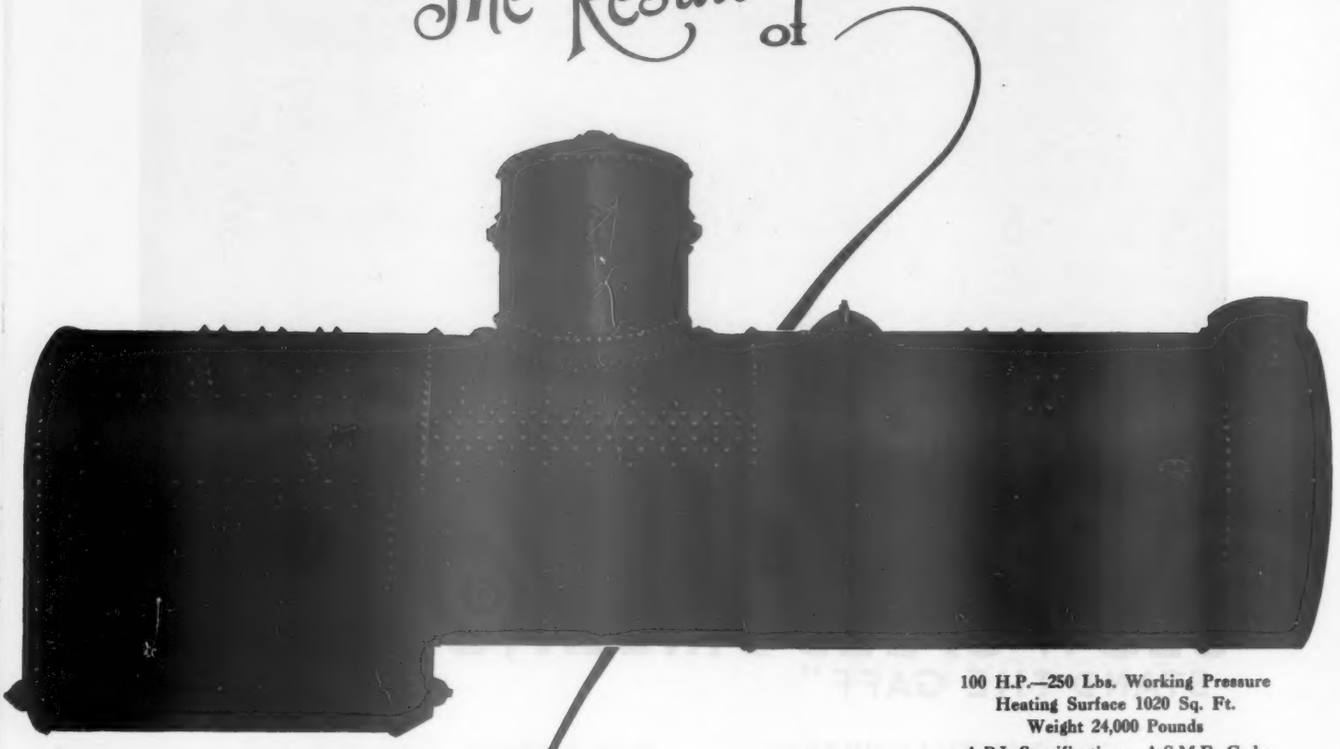
and Works

Kansas

Branches Throughout the Oil Fields

PERFECT PERFORMANCE

The Result of



100 H.P.—250 Lbs. Working Pressure
Heating Surface 1020 Sq. Ft.
Weight 24,000 Pounds
A.P.I. Specifications—A.S.M.E. Code
Especially designed for deepest drilling

CONTROLLED MANUFACTURE

Every step in manufacture—from raw materials to the finished boiler—must pass the most rigid examination by our engineering staff. Lucey Boilers are produced in their entirety in Lucey plants

Offices
NEW YORK
3505 Woolworth Bldg.
LONDON
54 Old Broad St., E.C., 2
PARIS (1er)
55 rue de Rivoli
TULSA
224 E. Brady St.
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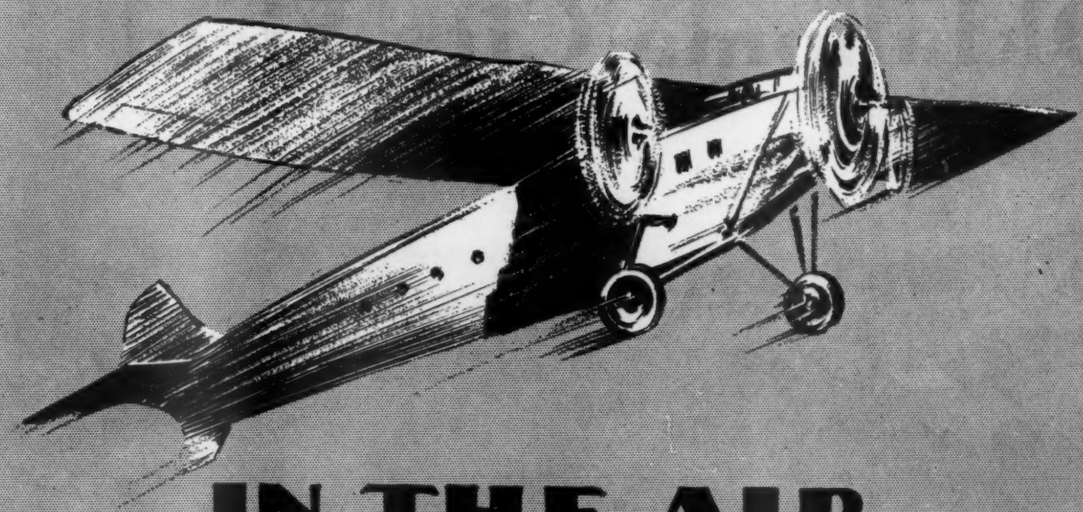
TAKE-OFF! POWER!



IN THE AIR OR ON THE GROUND

Whether it's to pull a tri-motored mammoth into the air—or to give a modern high-compression motor car a starting punch, Skelly Aviation Gasoline has the extra power for instant take-off.

Expect—and get—from it hours and hours of perfect motor performance, no matter what the weather conditions or the load.

Use Skelly Natural Gasoline to build up initial, to raise gravity, or to meet any other demand in raising the quality of your gasoline product.

The greetings of Skelly Oil Company's Natural Gasoline Division go to the Natural Gasoline Association of America, in convention in Tulsa.

Skelly Oil Company

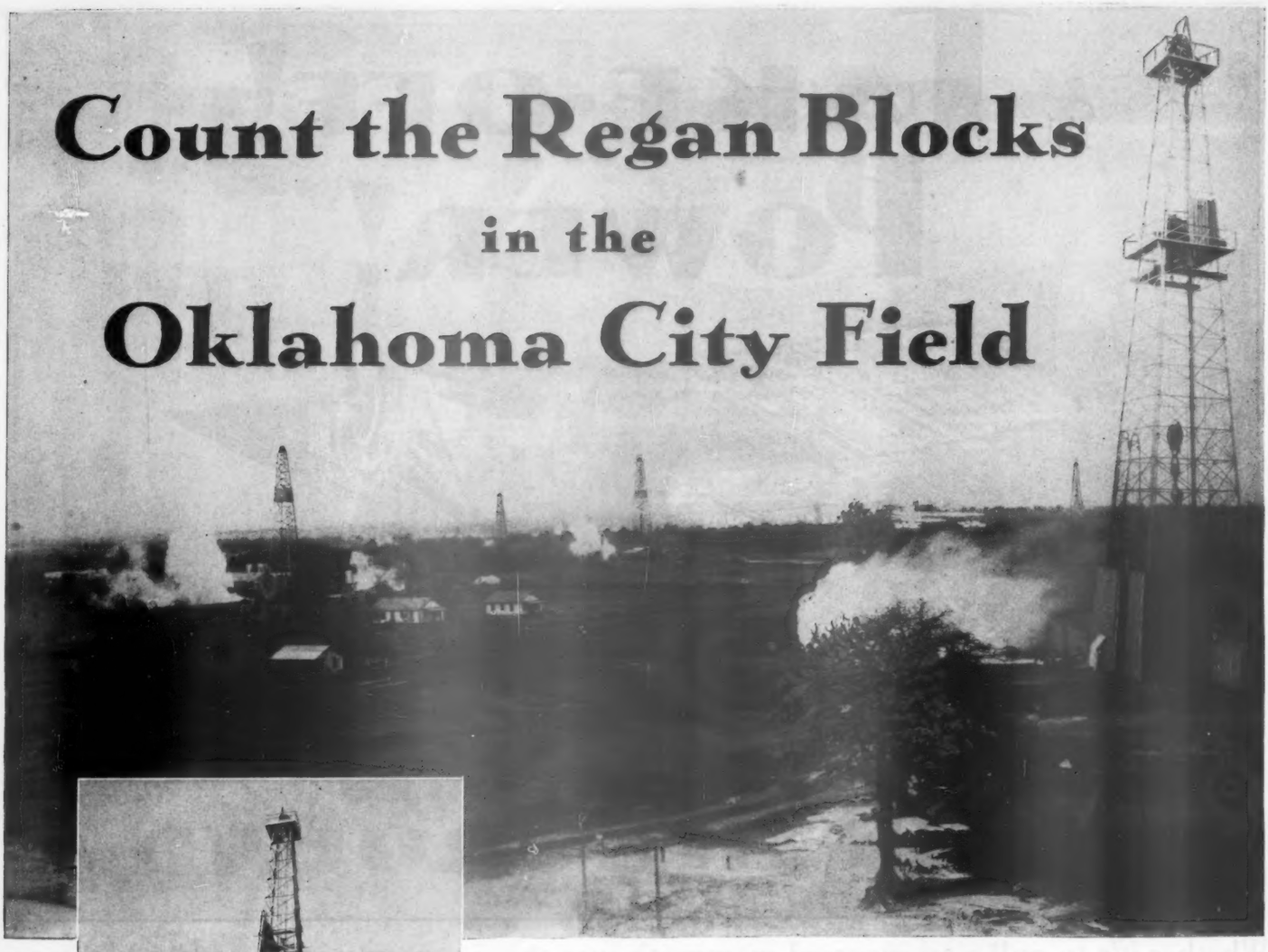
Tulsa, Oklahoma

EL DORADO, KANSAS KANSAS CITY OMAHA MINNEAPOLIS

SKELLY *Aviation* GASOLINE

SKELLY NATURAL GASOLINE

Count the Regan Blocks in the Oklahoma City Field



As in all new fields, the majority of Crown and Traveling Blocks in the Oklahoma City field are Regan's. Modern drilling methods require this advanced equipment—the highest development in speed, rigidity and long life.

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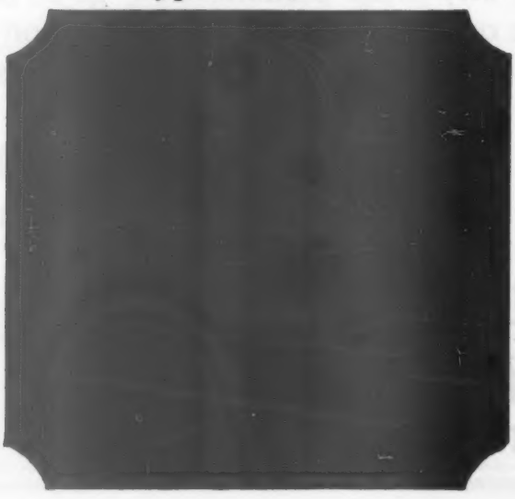

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Walworth 700 lb. Double Disc Steel Iron, Bronze Mounted and Bronze Stem, the accepted equipment for the difficult spots around the well in pump houses and along the pipe line right of way. Recommended for 400 lbs. pressure cold oil, water or gas.

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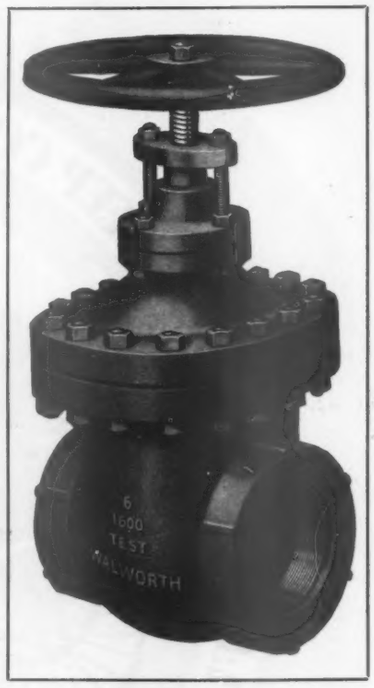
Walworth 1,000 lb. Double Disc Steel Iron Gate Valve, Bronze Mounted and Bronze Stem, a never failing valve for heavy duty. Recommended for 500 lbs. working pressure cold oil, water or gas.



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The "Big 3" of the Walworth Iron Body Double Disc Gate Valve line are standard equipment for cold oil, water or gas at pressures ranging from 400 to 800 pounds. The 125-pound valve fits in for any number of general uses wherever oil is handled. All these valves are available in either non-rising stem or outside screw and yoke design. Send for your copy of the Walworth Oil catalog.

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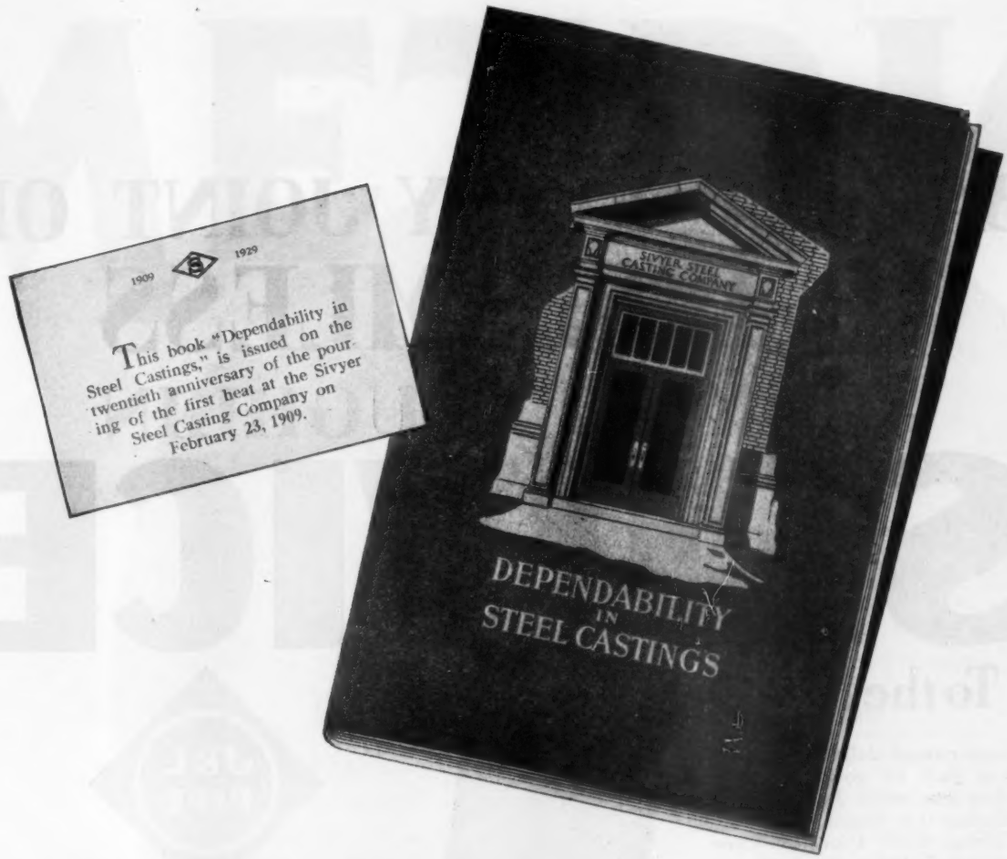
1909 1929
This book "Dependability in Steel Castings," is issued on the twentieth anniversary of the pouring of the first heat at the Sivyer Steel Casting Company on February 23, 1909.
SIVYER STEEL CASTING COMPANY
DEPENDABILITY IN STEEL CASTINGS

Not to Past Achievements .... But to Future Progress

When we look over the extensive line of cast steel alloys that our laboratory has developed—

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—We feel that here is something in which all concerned with the design, manufacture, and sale of heavy duty equipment are interested.

For such a story involves not only the remarkable rise of steel castings to their present high place—but the opportunities which they present to industry's design, manufacture, and sale of today and tomorrow.

To this end the book pictured has been prepared. A copy will be sent gladly upon request.

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Talk to men in the fields, the men who use J & L Seamless Casing, Tubing and Drill Pipe. In place of only the passive acceptance they accord ordinary products, you'll find full-measure enthusiasm built on experiences that have proved J & L Seamless to be the highest quality steel pipe you can run in a hole.

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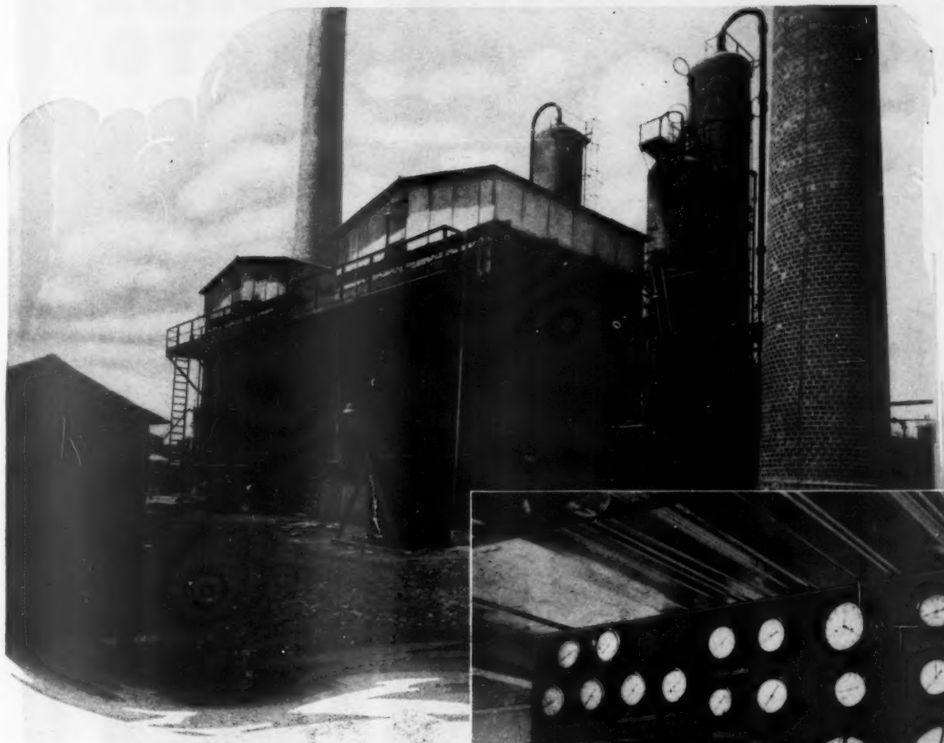

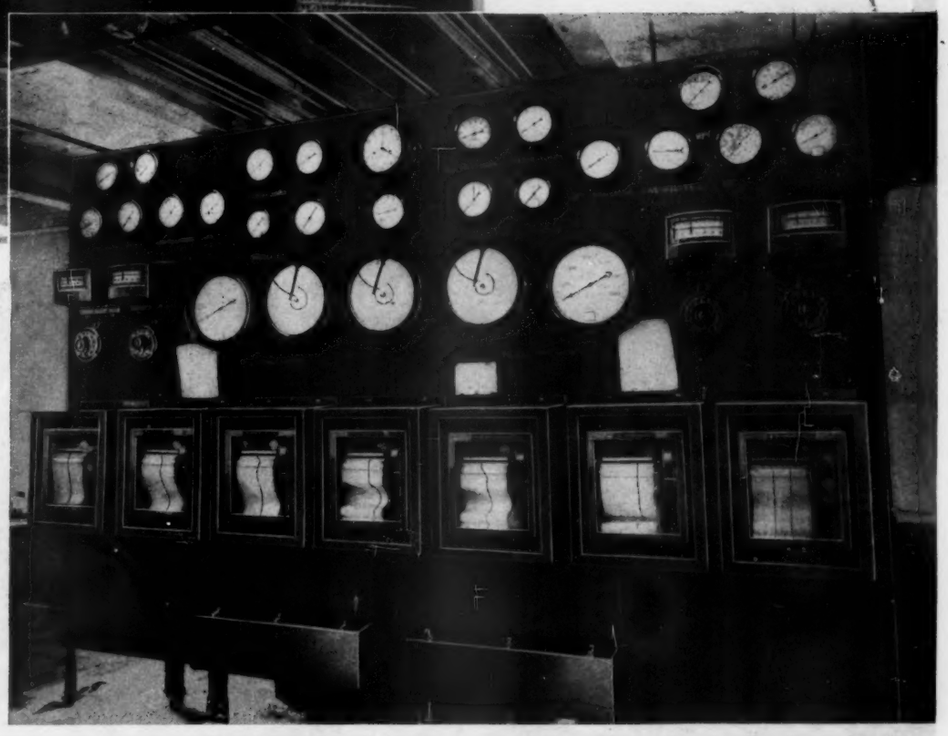

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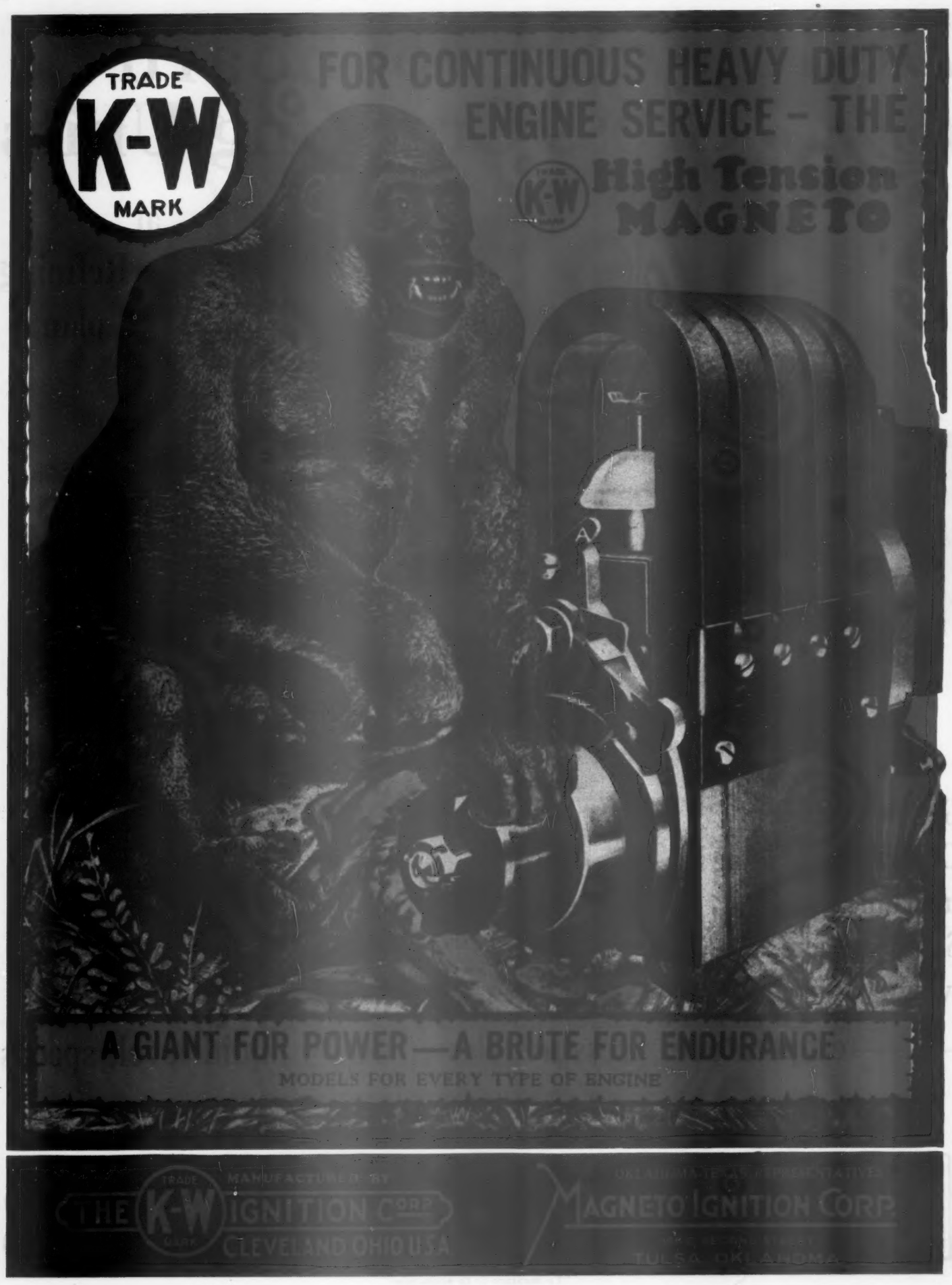
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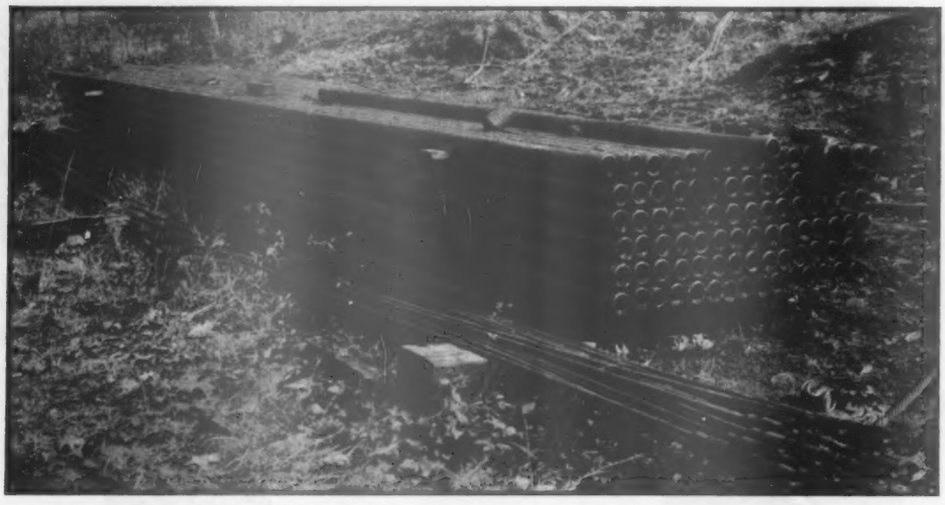
32 YEARS OF CONTINUOUS SERVICE WITH BYERS CASING . . .



Well at Macksburg, Ohio, Shows Outstanding Service Record Under Corrosive Conditions

RECENTLY, a well at Macksburg, Ohio, known as No. 1 Irish, was pulled, after 32 years of service.

This well was drilled in 1896, through a bed of No. 8 Cambridge coal, and has been producing a good grade of Pennsylvania grit oil. According to the foreman at the property, the casing in this territory is subject to corrosive action of sulphur water which drains down through the well.

When the casing, which is genuine Byers Wrought Iron, was pulled in October, 1928, it was possible to salvage all of the 4⅞" casing, amounting to 1400 feet, for use in drilling another well in the same vicinity.

The foreman, a man of practically thirty years of experience in the oil business in this territory, stated that he had never seen pipe under ground so long and still in such good shape.

Such records, however, are not unusual where Byers is used. Genuine wrought iron has fairly earned its reputation for longevity. The fibrous structure, the millions of microscopic slag filaments confer a degree of immunity to rust, vibration, shock, wear and tear which has never been equalled by cheaper ferrous material.

The illustration shown is an unretouched photograph of the casing taken after the well was pulled.

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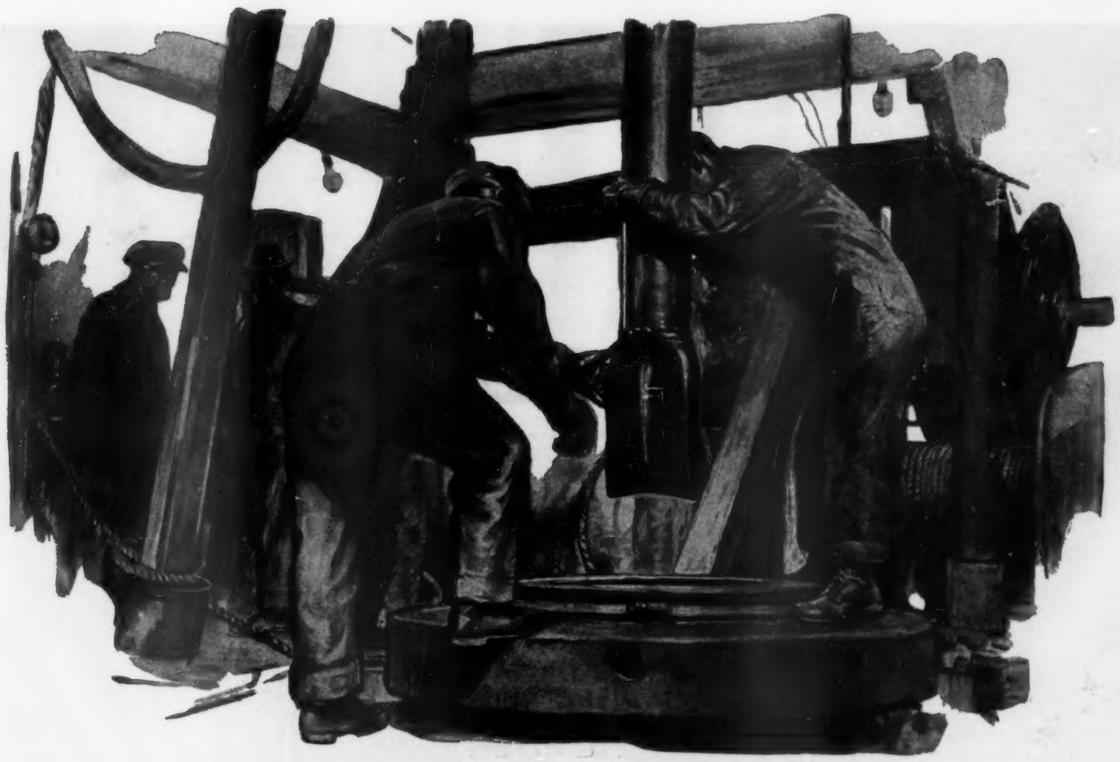

How Much Hole Will She Make?

(How Good Is The Steel?)

NO bit is a bit better than the steel from which it is made. Good workmanship, careful handling, skillful drilling — none of these will make hole unless the steel stands up.

You can assure the steel quality of your tools (and save plenty of grief) by specifying Agathon, the alloy steel used by many prominent manufacturers of drilling tools and patented fishing tools.

For tools that must be handled in the field, try Agathon Fine Forging Steels. These close grained steels are made according to best alloy practice. They stand up in oil field service and are as near fool-proof as steels can be.

Can we be of any assistance? Our metallurgical staff has made a study of drilling problems and the selection of steels to meet definite conditions.

Tool makers and drilling crews will find some helpful suggestions in the Agathon Alloy Handbook Send for a copy.

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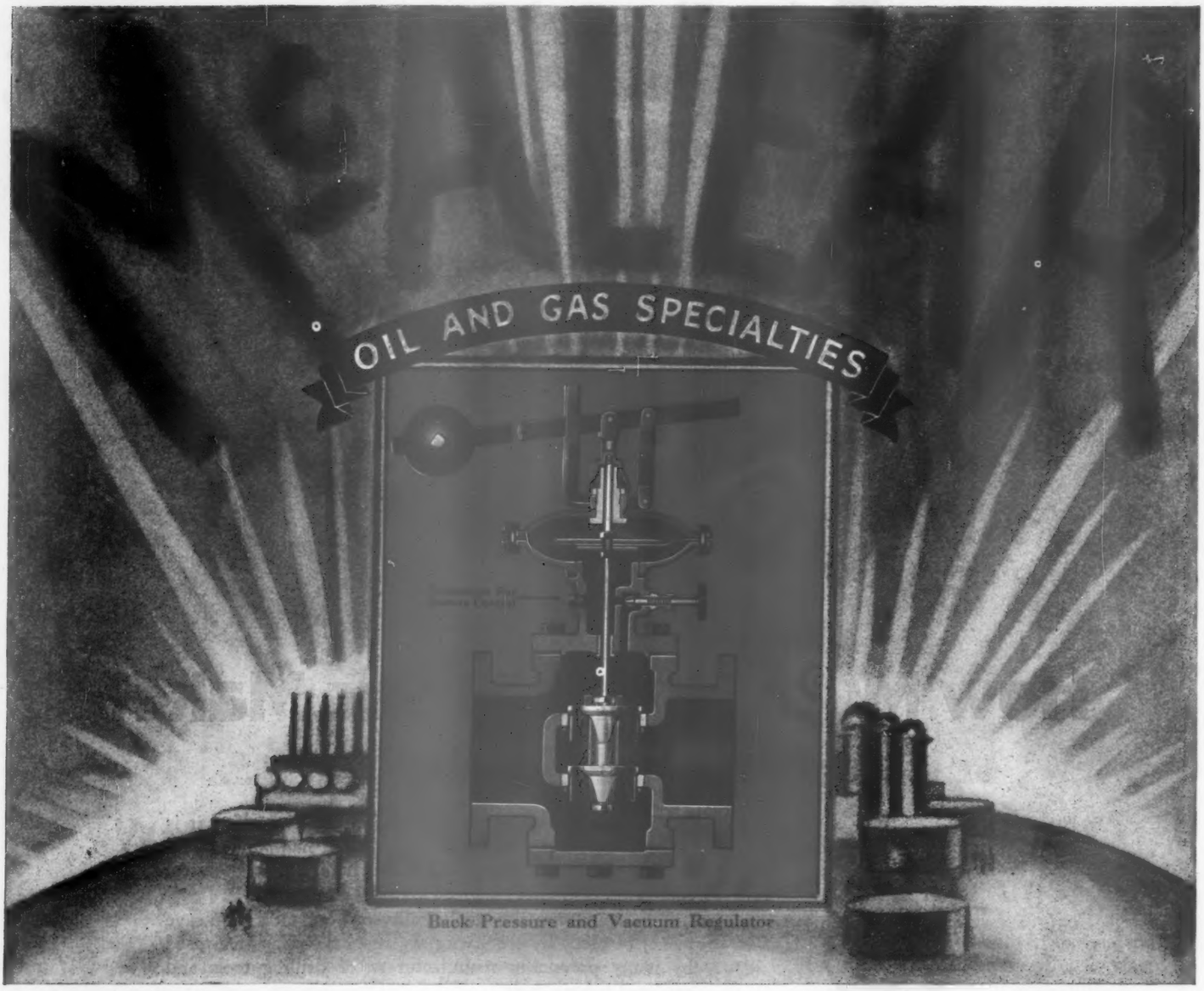

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When you want dependable, accurate, sensitive control of back pressures and vacuums, put this McAlear Regulator into service and watch how smoothly and accurately it maintains constant control.

Notice how, by the elimination of the stuffing box, it is actuated by the reduced pressure and not the initial pressure. Notice how the small choke valve prevents sudden changes in pressures on the diaphragm, eliminating pulsations and variations entirely. Notice how easily this valve is adapted to remote control and how all parts are fully protected against rain or snow.

This valve is also easily converted into a pressure reducing regulator.

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McAlear's complete line of automatic control specialties, is fully illustrated in our 128-page book. *Send for your copy.*

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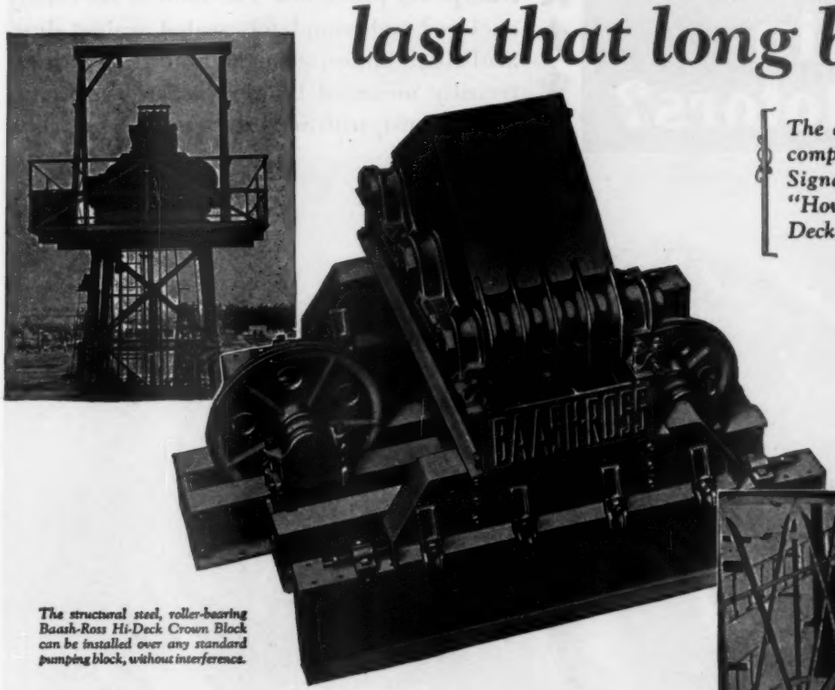
McALEAR

"Never had a wire line last that long before!"

The actual reply of a major company superintendent at Signal Hill to the query: "How's your Baash-Ross Hi-Deck Crown Block going?"



The structural steel, roller-bearing Baash-Ross Hi-Deck Crown Block can be installed over any standard pumping block, without interference.

Showing the straight fall, without side drag, of the lines between the Baash-Ross Crown and Travelling Blocks, even when blocks are close together!

DOWN 4,800 feet with 6⅝" drill pipe, with a wire line that had already completed one deep well... that proved, on careful examination, still to be free from flattened, worn, or broken wires, and apparently good for much longer use...

This performance of the first Baash-Ross Hi-Deck Crown Block and Travelling Block installed as a test has since led to the purchase of additional blocks.

Sheaves in crown and travelling blocks are *parallel*. Wire lines run straight and in the center of the API groove manganese sheaves, without side drag, preventing friction against the sides of the grooves. Sheaves 36 and 48 inches diameter reduce bending stresses. *Bulletin 25 gives other reasons for exceptional wire line life... free on request!*

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H & W Rotary Slips Holding Tool
Drill Collars up to 40 feet long
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Oil and Gas Journal, May 23rd, 1929

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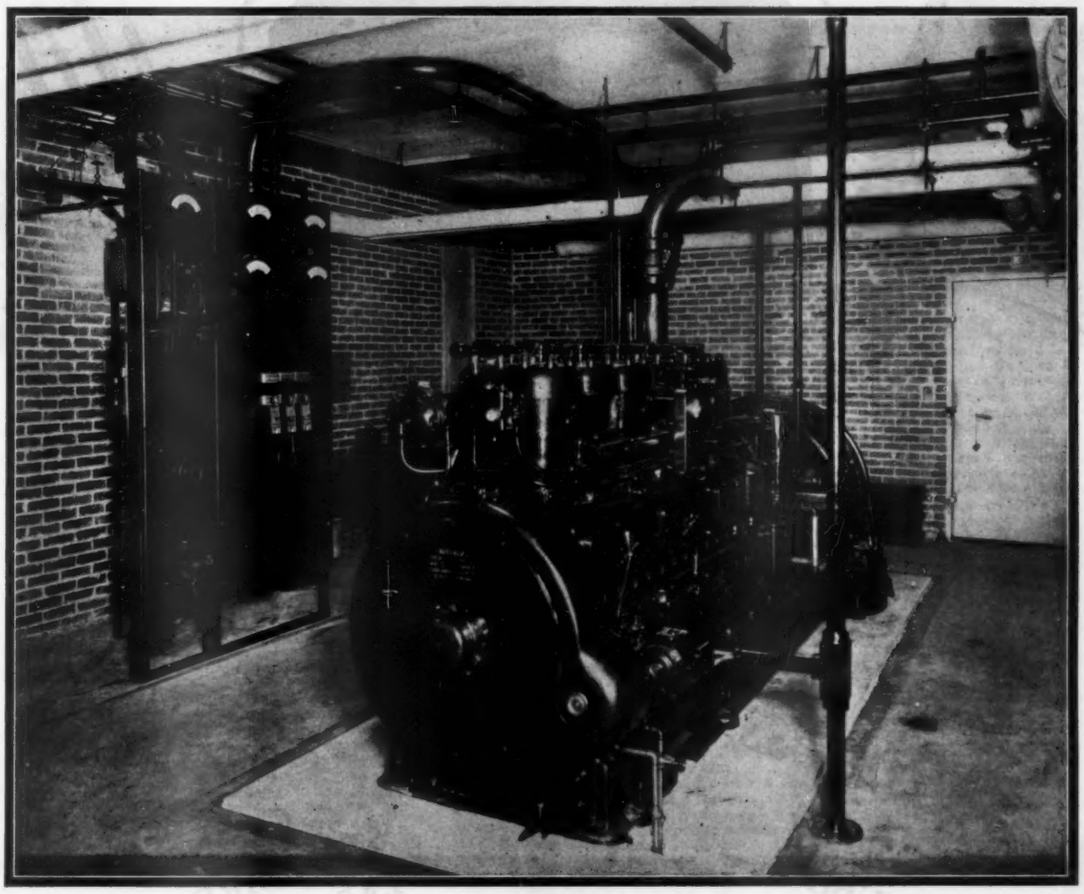

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This engine is heavily constructed for continuous service. Can be converted for gasoline operation when gas supply becomes inadequate.

FOUR and SIX CYLINDER
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The Oil and Gas Journal

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Higher Prices Reflect Improvement

Highest daily average estimated total production in 1928, week ended Dec. 29, 2,585,844 bbls. Lowest in 1928, May 19, 2,338,241 bbls.

Oklahoma Production Below Requirements and Stabilization Nearer in California. West Texas on Gravity Basis.

By Andrew M. Rowley

Highest daily average estimated light oil production in 1928, week ended Dec. 29, 2,158,134 bbls. Lowest in 1928, Mar. 3, 1,927,713 bbls.

Crude price increases announced on Monday and Tuesday of this week in various sections of the United States are concrete proof of the improved conditions of the petroleum industry. With proration lifted in Oklahoma, that state registered an increase in production of only 1,000 barrels daily, although excessive rains probably helped curtail the output. On Tuesday of this week Oklahoma's production totaled 694,000 barrels and it is believed the maximum output of present wells would not be above 695,000 barrels. That figure is below the quantity purchasers claim they need for present requirements and crude oil is being withdrawn from storage in the Oklahoma-Kansas-North Texas territory. Should such a condition continue, and it is likely to do so for some time, it is not improbable another price increase may be announced within a comparatively short time.

California appears to be nearer stabilization than at any other time in years due to the passage by the legislature and signing by the governor of the natural gas conservation measure. When provisions of that measure are made effective, probably in about 30 days, crude oil production in the flush fields will be curtailed automatically as excess natural gas production is shut in.

Placing West Texas on a gravity basis with an increase in prices of grades chiefly purchased of from 25 to 29 cents a barrel, will aid producers in that area. Operators there realize pinching in their wells means a greater ultimate recovery of oil so little or no change in the conservation situation is expected from that section.

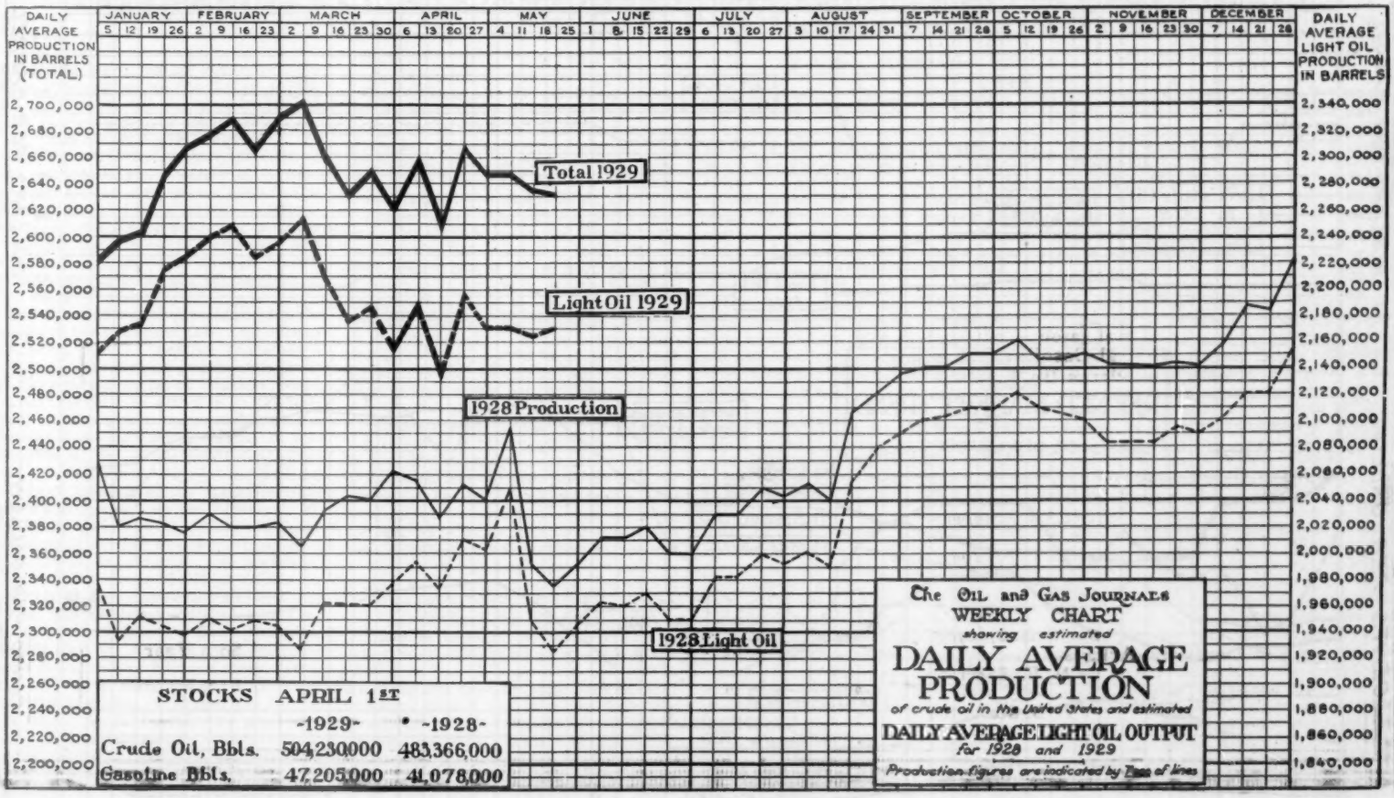
In considering the matter of justification of the crude price increases at this time, two vital factors should be kept in mind—first, that present production in the area covered by the higher prices is below requirements of the purchasing companies; and, second, that there is practically no doubt in the minds of anyone that crude oil prices were entirely too low and below actual cost of production in many instances. When crude oil is being withdrawn from storage at a loss, as has been and is the case in the Mid-Continent, it certainly is time to increase prices.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended May 18, and a comparison with the previous week follows:

	May 18		May 11	
	Light	Heavy	Light	Heavy
Oklahoma—				
Tonkawa	10,180	.....	10,380	.....
Burbank	20,535	.....	20,735	.....
Other Osage Fields	24,840	.....	24,740	.....
St. Louis-Pearson	94,145	.....	97,685	.....
Cushing and Shamrock	20,130	.....	20,545	.....
Bristow	19,270	.....	19,570	.....
Allen	24,810	.....	24,770	.....
Seminole	281,730	.....	279,985	.....
Northern Miscellaneous	121,560	.....	118,410	.....
Southern Fields	54,970	.....	54,230	.....
Total Oklahoma	672,170	.....	671,050	.....
West Texas—				
Hendricks	139,591	.....	139,750	.....
Yates	91,564	.....	89,950	.....
Remainder	121,689	.....	122,917	.....
Total West Texas	352,844	.....	352,617	.....
North Louisiana	29,410	5,960	29,285	6,070
Arkansas	22,580	48,610	22,400	48,825
North Central Texas	137,123	.....	138,432	.....
Texas Panhandle	63,140	.....	59,335	.....
East Central Texas	19,603	.....	19,489	.....
Kansas	115,210	.....	113,845	.....
Total Mid-Continent Area	1,412,080	54,570	1,406,453	54,895
Gulf Coast	.....	149,909	.....	156,876
Southwest Texas	.....	77,673	.....	74,659
Eastern	114,000	.....	113,000	.....
Rocky Mountain Area	70,871	.....	69,425	.....
California—				
Santa Fe Springs	168,000	.....	169,000	.....
Long Beach	175,000	.....	174,500	.....
Torrance	2,500	10,000	2,000	11,000
Huntington Beach	42,000	.....	43,000	.....
Elwood	28,000	.....	29,000	.....
Inglewood	13,000	9,500	13,000	10,000
Ventura Avenue	54,500	.....	54,000	.....
Seal Beach	39,500	.....	39,000	.....
Remainder of State	53,000	158,000	55,000	162,000
Total California	575,500	177,500	578,500	183,000
Total United States	2,172,451	459,652	2,167,378	469,430
Grand Total		2,632,103		2,636,808

Total Decrease, 4,705 Bbls.; Light Oil Increase, 5,073 Bbls.



Gasoline Responds to Crude Advance

General Increase in Posted Schedules With Higher Gasoline Tank Wagon Prices in Middle West Reflected in Refinery Market

By C. O. Willson

A substantial increase in the cost of raw material and a 1-cent advance in the price received for gasoline in the consuming market were the external stimuli which on Tuesday were bringing important changes in the Oklahoma (Group 3) refinery market.

The situation in the consuming market was changed on Saturday when the Standard Oil Co. of Indiana advanced gasoline tank wagon and service station prices 1 cent throughout its entire territory consisting of Illinois, Iowa, Minnesota, Wisconsin, Michigan, Indiana, North Dakota, South Dakota, Missouri and Kansas. The Standard Oil Co. of Nebraska made a similar advance in Nebraska.

On Monday the Oklahoma refiners saw their posted crude oil schedules advanced from 17 to 41 cents a barrel. Thus the refiner was faced with the problem of determining how much of the increase in his customer's gasoline market he could absorb and at the same time offset the higher manufacturing cost due to the increased cost of raw material.

This combination of gasoline tank wagon and crude price advances is not a new experience to Oklahoma and other Mid-Continent refiners. In this case both had been expected since the first of the month. However, it was not possible on Tuesday to definitely determine just how these changes would be reflected in the refinery market.

Many of the Oklahoma refiners advanced their price on U. S. Motor gasoline from 7¾ to 8 cents on Saturday and Monday after the higher tank wagon prices became effective. A few refiners boosted this price an additional one-fourth cent on Tuesday following the crude oil advance and predictions were heard that a price of 8½ cents to the jobbing trade would be general before the end of the week. If this prediction materializes the refiners will thus absorb three-fourths of the 1-cent advance in the jobbers' tank wagon and service station market.

The advance in tank wagon prices came at a time when it was needed if spot prices at refineries were to be advanced further. Most of the new contracts between Oklahoma refiners and Middle West jobbers are based on published prices for spot shipment with a clause in which the refiners guarantee the jobbers a 4-cent net margin under their tank wagon prices as posted by the Standard Oil Co. of Indiana. When the U. S. Motor gasoline price was advanced to 7¾ cents a week ago the dividing line between the spot market and the guaranteed margin had been reached. Further advances in the spot market would not have aided many refiners as their customers would have taken their shipments at the guaranteed price.

The 1-cent advance now places the spot market limit at around 8¾ cents. It is doubtful if the spot market advances to that point at this time. A few of the refiners are urging caution in advancing spot prices. It is pointed out that the advance in crude oil and tank wagon prices was so widely expected that most of the jobbers in the past month bought in excess of their current requirements and have filled their storage tanks. This includes the major jobbers whose storage is large enough to supply a substantial part of their summer requirements.

This situation means that future buying will be confined to the actual requirements of the consuming market and if spot prices are advanced too rapidly at this time some of the jobbers probably would not hesitate to draw on their summer storage. Although the consumption of gasoline is expected to increase rapidly it is pointed out that a period of unfavor-

(Continued on Page 183)

REFINED MARKET BAROMETER

A general advance in gasoline tank wagon prices in one of the largest gasoline-consuming areas with scattered advances in other sections coupled with higher posted crude oil prices in the high gravity areas of the Mid-Continent served to further strengthen gasoline prices at refineries. The actual price advances were confined to the Mid-Continent and Middle West but other areas including exports are expected to respond to the higher manufacturing costs and the advent of the main consuming season with higher prices. Kerosene prices were generally firm in all areas with a dull domestic and export movement. Fuel oil and gas oil prices are unchanged although the higher crude oil prices are expected to strengthen prices for these products in several areas later in the week. Natural gasolines continue sluggish in the Mid-Continent with no changes in California. Steam refined cylinder stocks and bright stocks are strong with important price advances confined to the East Coast. More inquiries are being received for wax from exporters although prices again reduced in East Coast area.

Mid-Continent—Higher crude oil and a 1-cent advance in gasoline tank wagon and service station prices have been reflected in one-quarter to one-half-cent advances in prices at refineries. No important changes in other products first of week. Fuel oil and gas oil prices expected to move higher due to advance in crude oil prices. Buying of natural gasoline improved first of week and downward trend in prices stopped. Cylinder stocks strong. Wax weak.

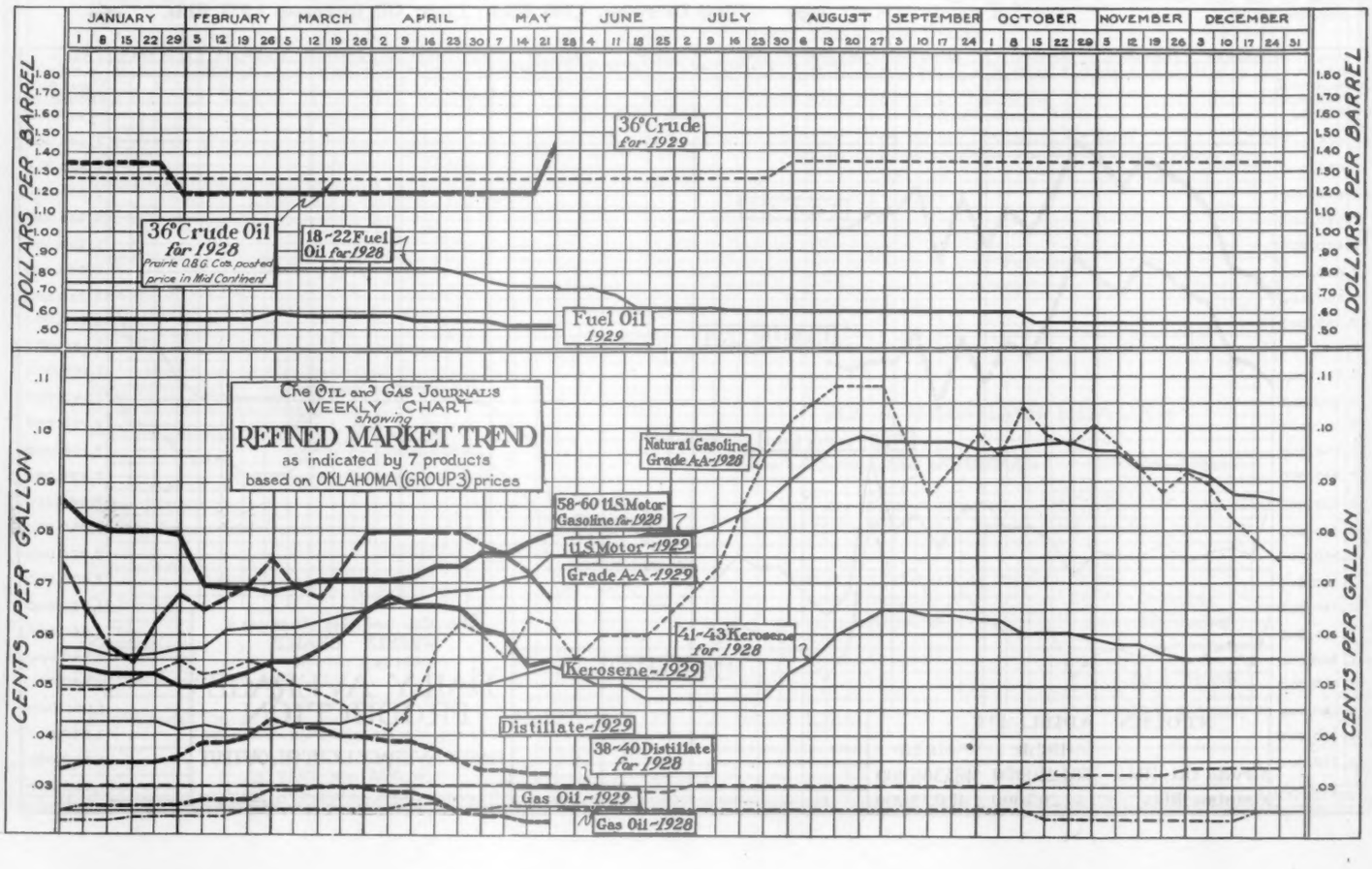
East Coast—Gasoline market stronger as consumption increases and Mid-Continent prices are advanced. Kerosene prices unchanged with routine export and domestic movement. Further advances in steam refined cylinder stocks and bright stocks. No change in neutrals. Fair movement of gas oil at steady prices. Paraffin wax prices lower.

Chicago—Advance in gasoline tank wagon and service station prices of Standard of Indiana and higher crude oil prices in Mid-Continent causing sellers to advance refinery prices on gasoline. Kerosene demand slow. No change in fuel oil and gas oil.

Pennsylvania—Reaction in several grades of steam refined stocks and bright stocks and prices slightly lower than last week. Gasolines and kerosene unchanged.

Gulf Coast—Routine demand for neutral oils with no changes in prices. Fuel oils easier.

California—Prices higher on some grades of engine distillate. Good movement of gasoline.



Compact Is Believed Unconstitutional

Opinion of Oil Lawyers Before A.P.I. Meeting Which Offers Continued Co-operation With Federal Oil Board

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, May 21.—The executive committee of the American Petroleum Institute and the General Committee of the Committee on World Production and Consumption of Petroleum and Its Products, reinforced by counsel for many of the leading oil companies, met here today for further consideration of the industry's conservation program. Discussion of the plan of the Federal Oil Conservation Board involving the proposed state compact for oil conservation took up a good deal of the committee's time.

Today's meeting is preliminary to the regular monthly meeting of the board of directors of the Institute and the results of the deliberations of the executive committee will be placed before the board at its meeting here next week.

Compact Unconstitutional

While no official announcement was made at the close of the executive committee's session, it is understood that the legal departments of a number of the leading oil companies are strongly of the opinion that the proposed state compact is unconstitutional and that further consideration of this plan will result only in further deferring the benefits of the conservation movement. It is indicated, however, that a committee representing the American Petroleum Institute will probably confer with Ray Lyman Wilbur, Secretary of the Interior, on the proposed compact before the Institute definitely commits itself further on the question but it does not appear at this time that sufficient favorable sentiment for the state compact idea can be mustered to result in the adoption of this plan.

However, until the state compact plan is put forward in more detail it is understood that the petroleum industry will withhold judgment on the suggested plan and will co-operate to the fullest extent with the Federal Oil Conservation Board in its further study of the problem.

Let States Solve Problem

Leading petroleum company executives, it is understood, are insistent that something definite be done in the near future regarding a furthering of the conservation plan with strong sentiment in favor of letting the States of California and Texas solve the problem through conservation restrictions within the borders of each state.

There is nothing in any federal law to prevent either or both of these states from embarking upon a definite curtailment movement within their own borders, it is pointed out, and action of this sort would not only be fully as effective as the proposed state compact but would give the industry immediate action looking to stabilization of the crude petroleum situation.

Today's meeting of the executive committee was attended by the following: E. B. Reeser, president Barnsdall Oil Corp. and of the American Petroleum Institute; W. R. Boyd, Jr., executive vice president, American Petroleum Institute; Amos L. Beaty, treasurer, American Petroleum Institute; R. C. Holmes, president, The Texas Company; J. Howard Pew, president, Sun Oil Co.; W. M. Irish, president, Atlantic Refining Co.; Richard Airey, president, Asiatic Petroleum Co.; A. F. Corwin, vice president, Standard Oil Co. of New York; F. R. Coates, vice president, Henry L. Doherty and Co.; Judge H. O. Caster, counsel, Henry L. Doherty and Co.; C. B. Ames, vice president, The Texas Company; E. R. Brown, president, Magnolia Petroleum Corp; C. F. Meyer, president, Standard Oil Co. of New York; W. N. Davis, vice president, Phillips Petroleum Co.; A. E. Watts, vice president, Sinclair Consolidated Oil Corp.; William Green, vice president, Pan American Petroleum & Transport Co.; E. J. Sadler, president, Creole Petroleum Co.; A. J. Byles, president, Tide Water Associated Oil Co.; W. F. Humphreys, president, Associated Oil Co.; Paul M. Gregg, general counsel, Union Oil Co. of California; J. A. Veasey, general counsel, Carter Oil Co.; Henry M. Dawes, president, Pure Oil Co.; W. C. Franklin, vice president, Tidal Oil Co.; and W. S. Fitzpatrick, chairman of the board, Prairie Oil & Gas Co.

Judge Ames' Views

The problem of petroleum conservation is one which can be directly solved by California and Texas, without an interstate compact or a national compact sanctioned by Congress, in the opinion of C. B. Ames, vice president of The Texas Company. Mr. Ames sets forth his views to some extent in the forthcoming issue of the Texaco Star, house organ of The Texas Company.

Accepting the 1928 production rate as a basis for maximum output in 1929, Mr. Ames declared that Texas and California are the only two states which are now exceeding their average daily production for 1928, and places the solution of the problem of overproduction squarely before these two states, and these two only.

"It is putting it very mildly," writes Mr. Ames, "to say that the industry was surprised to find that a program developed by it in harmony with the recommendations of the Federal Oil Conservation Board was regarded by the Attorney-General as an effort on its part to secure immunity from a prosecution under the antitrust laws, but as the Federal Oil Conservation Board felt, naturally, that it was bound by the opinion of the Attorney-General, it was prevented from approving the program of the institute."

Industry Co-operates

Quoting the reply of the Federal Oil Conservation Board, which pointed out that owing to the legal aspects of the curtailment plan, the solution appeared one for state action, Mr. Ames continues: "It thus appears that after four years of effort, during which time the industry, after much study, many conferences, many individual sacrifices, and considerable expense, has agreed upon a program, the Federal Oil Conservation Board has found itself unable to approve this program, and has formulated a new one involving a compact between the principal oil-producing states to be approved by Congress, the details of which are not stated further than that 'it would well comprise creating a joint board for the purposes of constructive conservation.' It will be noted that the industry is not invited to participate in the formulation of this program, but notwithstanding this fact, which may have been unintentional, the institute has advised the board that it stands ready to consider the plan carefully and will appoint committees for that purpose, if the board desires it to do so.

"Congress has approved approximately 25 interstate compacts, and I believe that without exception these compacts all relate to some subject which no state, acting alone, could control. In the main, these compacts compose boundary disputes or deal with navigable waters on the boundary line between two or more states, or the control of waters in a stream traversing a number of states, or deal with land titles in a state which has been created out of the boundaries of another.

Compact Cannot Help

"The production of oil in any given state is one over which that state alone has control, subject to constitutional provisions. I do not see how a compact between states can give to any one state any greater control within its boundaries than it now has. In other words, each state can now do without a compact all that it could do with a compact, and, as far as interstate relations are concerned, Congress can now do without a compact all that it could do with a compact. I fear, therefore, that the suggestion of a compact will involve considerable delay and will in the end accomplish no useful result, but if I am mistaken in this I shall be greatly gratified.

"It will be remembered that the com-

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Industry's Outlook Is Much Brighter

California's Conservation Law Most Important Factor. Crude Price Increase Justified by Conditions

By Andrew M. Rowley

The outlook for the petroleum industry appears more promising now than it has for a year or longer. Increased prices for Mid-Continent crude oil, long anticipated, have materialized and, despite some assertions to the contrary, are warranted by conditions in the Mid-Continent area. The signing by the Governor of California of the natural gas conservation measure is equally, if not more, important as the announcement of higher prices for crude in the Mid-Continent. Operators in the West Texas area are handling the situation there in an admirable manner and it is being realized more and more in that section that curtailment of production is necessary to minimize water encroachment and to obtain the greatest ultimate recovery from the different fields.

Production of high gravity, sweet crude in the Mid-Continent area at this time is not sufficient to meet present requirements. A number of the companies have been forced to withdraw crude oil from storage. The price at which this crude was withdrawn from storage represented a loss to the owners and it would be mighty poor business to continue such a situation any length of time.

Crude Raise Justified

There is little or no doubt crude oil prices in the Mid-Continent area would have been raised some time ago had it not been for the fact operators in that territory viewed the situation from the standpoint of the country as a whole. As long as West Texas and California threatened the situation, companies operating in the Mid-Continent were willing to go along with the conservation movement and do their part in the nation-wide movement to bring stabilization to the industry as a whole.

It was generally conceded crude oil prices in the Mid-Continent area were below the figure which would give operators even a small profit and every barrel taken out of storage represented a loss. With an increased demand due to seasonal requirements, it was a foregone conclusion prices would be raised as soon as proration in Oklahoma was lifted, as was done May 15.

It is not entirely improbable that the price increases announced on Monday of this week, while fairly substantial, are but the first of an upward trend in the price schedule. While higher prices naturally provide a greater incentive for drilling and more drilling may be expected to result in the opening of additional productive areas or horizons, such production cannot be procured overnight and there is a big demand for Mid-Continent crude right now.

While proration was lifted in Oklahoma on May 15 and the state has been producing without artificial restriction ever since, the average daily output last week showed a gain of only about 1,000 bbls. daily over the previous week. Inclement weather conditions in the Greater Seminole area probably held the output there down somewhat but Oklahoma cannot at this time produce the 725,000 bbls. daily permitted by the State Corporation Commission, unless new discoveries are made.

California Law Big Factor

The greatest step towards stabilization of the petroleum industry in California was taken when Governor Young signed the natural gas conservation measure. That measure, which became effective immediately, due to the emergency clause attached, will permit the state to prevent waste of natural gas and, in so doing will automatically curtail the output of crude oil. The greatest effect, naturally, will be felt in the flush fields of the state where vast quantities of natural gas have been produced with the oil and have been blown into the air.

It will require probably 30 days before definite action is taken to enforce the measure in California owing to the necessity of working out the many details before the measure can actually be applied to the various fields. However, the fact the measure is now a law gives the entire industry assurance that means are available to limit the output of California more nearly to market requirements and that this means will be made effective in the very near future.

It has been estimated a strict enforcement of the new law would mean a reduction in crude oil production in California amounting to 250,000 bbls. daily but no one expects such a reduction will be made. Such a decline in output would result in a temporary shortage of sweet crude oil needed by Pacific Coast refineries—a far different picture for the industry to view than the situation which has obtained when new discoveries of high gravity fields have threatened the entire industry throughout the country.

Undoubtedly there will be an increase in drilling operations as a result of the increase in posted prices, but, according to statements made by officials of some of the large purchasing companies, more crude oil is needed than is being produced.

Technical Sessions Feature Meeting

Papers Presented at Annual Convention of Gasoline Manufacturers Reflect Progress. Doctor Brown Reports on Research Program

By C. O. Willson

Several hundred men connected with the various phases of natural gasoline manufacture coming from as far west as California and as far east as Pennsylvania and West Virginia assembled in Tulsa on Tuesday for the opening of their eighth annual meeting under the auspices of the Natural Gasoline Association of America. The convention extended through Thursday.

Meetings of natural gasoline manufacturers are invariably of a practical nature and the meeting this year was no exception. The three days were largely devoted to the presentation of descriptive and technical papers dealing with the latest developments in plant construction and operation, including methods of testing and utilization of finished products.

However, between the "work" periods there was time for play and good fellowship. The Natural Gasoline Association of America has been functioning over a sufficient length of time that its membership has become a fraternity with the annual meeting at Tulsa the get-together occasion of the year.

"If I got nothing more out of the meeting than the privilege of meeting other manufacturers, the time and expense would be justified," said one Texas manufacturer who added that the Natural Gasoline Association of America had become one of the outstanding technical organizations of the petroleum world and had made it possible for the gasoline manufacturers to become a distinct branch of the oil industry.

In his address of welcome Tuesday morning, F. L. Chase, vice president of the Lone Star Gas Co., Dallas, urged all the members to contribute to the common fund of information. "Let us give as well as take," said Mr. Chase. "Let us have a frank exchange of views. The membership of this organization is composed largely of technical men, and if each one here will tell freely what he has accomplished in his research work in the past year all of us will go back to our companies better fitted for the work ahead."

Mr. Chase referred to the high character of the men making up the Natural Gasoline Association and expressed gratification over the fact that many of the visitors had come from distant points. He introduced George Ratcliffe, manager of the natural gasoline department of the General Petroleum Corp., California, and president of the California Natural Gasoline Association, and S. F. Birch, of the Anglo-Persian Oil Co., London, England.

H. A. Trower, who retires this year after heading association's activities for two years, reviewed the work of industry over the past year. He pointed to the more favorable price situation of the past year as indicative of the improved economic situation in the natural gasoline industry, a condition largely brought about by the more widespread appreciation of the value of natural gasoline which was responsible for a heavy demand. He commended the work of association's committees which are in direct charge of the various phases of the association's activities.

Mr. Trower spoke highly of the results of the association's research program under the direction of Dr. G. G. Brown. The future outlook for natural gasoline, Mr. Trower said, is largely dependent on the success of the efforts being made by the industry generally to overcome the evils of overproduction. He pointed out that the further development of diversification of markets for products secured from natural gasoline will also aid materially in assuring the permanent stability of the natural gasoline industry.

Starting Tuesday afternoon the sessions in the morning and afternoon were given over to specially prepared papers on assigned subjects. The object of the program committee in these papers was to cover the subjects in which there is the greatest interest at this time. A lively discussion followed the presentation of some of the papers. F. L. Chase, W. A. Melton, D. E. Buchanan, A. J. Schlosser and Dr. E. R. Lederer presided at the several sessions.

Nominating Committee

President Trower on Tuesday appointed the following nominating committee for the annual election which was scheduled to be held Thursday afternoon: E. L. Peck, Empire Oil & Refining Co., chairman; F. E. Rice, Phillips Petroleum Co. and D. E. Buchanan, Chestnut & Smith Corp.

Discussion among the membership indicated strong support for Dr. E. R. Lederer as president of the association next year. Doctor Lederer has served as a vice president of the association for the past two years and has been active in the association work for several years. He is vice president of the Texas Pacific Coal & Oil Co. with headquarters in Fort Worth.

Dr. Brown's Report

Dr. G. G. Brown, professor of chemistry at the University of Michigan and head of the association's research department, on Wednesday presented a report which was in the nature of a summary covering the results of a three-year program. Doctor Brown was first retained by the association in 1926. The purpose of the program was to obtain scientific data covering the chemical composition of natural gasoline with an accurate study of its performance as a constituent of refinery gasoline and as finished motor fuel. Under Doctor Brown's direction fellowships at the University of Michigan sponsored by the association have aided materially in carrying on the research program.

Starting in 1927 Doctor Brown has made yearly reports at the annual convention explaining the progress of his work. Members of the association have expressed themselves highly pleased with the results obtained. It is felt it has served to overcome finally whatever prejudice remained regarding the use of natural gasoline and has enlarged the demand by showing the advantages when utilized in greater quantities as blending material. The work of Doctor Brown also contributed materially to the investigations which have resulted in stabilized natural gasoline being used as a finished motor fuel without blending. It is also felt that the data obtained by Doctor Brown will serve as a foundation for future research work around which the natural gasoline industry hopes to enlarge old uses and develop new outlets for its products.

Volatility and Motor Performance

The major part of Doctor Brown's Wednesday morning and afternoon reports were devoted to the relationship between motor fuel volatility and engine performance. He also discussed the application of Raoult's law to the computation of vapor pressures and vaporization processes.

The discussion of motor fuel volatility was divided into four general divisions. Under the head of equilibrium volatility data were presented which indicate that the Sligh air distillation apparatus may not be relied upon to give true equilibrium conditions. It was also shown that a more complicated relationship between the A.S T.M. distillation and the equilibrium air distillation is required than has been proposed by Doctor Bridgman if the equilibrium volatility of the fuel is to be estimated with sufficient precision to be of practical value.

Effective Volatility

The preliminary work on effective volatility was explained by Doctor Brown in articles appearing in the February 28 and March 7, 1929 issues of The Oil and Gas Journal. Doctor Brown explained that this work has been continued until they now have a quantitative relationship between equilibrium volatility and effective volatility as determined in the six-cylinder motor described. This makes it possible to estimate with a fair degree of precision the effective volatility of a motor fuel from its equilibrium volatility. It has been found that conditions in the manifold may be well indicated by adding from 40 to 100 degrees Fahrenheit to the equilibrium volatility and furthermore, adding up to 35 or 40 per cent to allow for entrainment and distribution of liquid fuel in the engine manifold. These results show that 40 per cent effective volatility is determined by the 10 to 15 per cent range on the A.S.T.M. distillation and not by the 40 per cent point as has been previously supposed, but when more of the fuel has been vaporized this discrepancy is reduced to practically zero at about 65 to 70 per cent volatility.

Motor Performance

In checking effective volatility and motor performance at the university laboratory a six-cylinder engine was used. Doctor Brown explained that although the effective volatilities determined are strictly applicable only to the motor tested, the relative differences in the fuels will persist in manifolds of different types. As a mixture ratio less than 8 to 1 or greater than 20 to 1 is practically nonexplosive in the internal combustion engine, it is clear that a fuel must possess sufficient partial volatility to deliver mixtures within this range in order to keep the motor running. During the warming-up period

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EIGHTH ANNUAL CONVENTION, NATURAL GASOLINE

Must Widen Natural Gasoline Market

President Trower in Annual Address Urges Manufacturers To Seek New Products and Outlets. Economic Situation Improved

By H. A. Trower
President, Natural Gasoline Association of America*

Again it is my privilege to inaugurate an annual convention of the Natural Gasoline Association. It is, indeed, with a feeling of pride that I review the activities of the eighth year of this association. I feel confident that no other similar body has accomplished so much in so short a time. The natural gasoline industry can well feel secure as long as it can sponsor so active and progressive a co-operative organization as ours.

During the past year four companies have been admitted to membership in the association. These companies were the LaSalle Petroleum Corp. (Noble Oil & Gas Co.), the Lovell Gasoline Corp., The Texas Company and the Carter Oil Co. It is a pleasure to greet the representatives of these companies to their first convention as active members of the association.

This week marks the end of the 1928-1929 year of the association. The year was ushered in under the cloud of overproduction of crude oil. Misgivings were freely expressed as to the fate of the entire petroleum industry and of our own branch in particular. Yet the pessimism was not justified. The natural gasoline industry has passed through less prosperous years than the year just ended. The same cloud of overproduction of crude oil still persists, but we face the future with the courage born of having stood the test. It is our task and duty to stand shoulder to shoulder with the leaders of the petroleum industry in their efforts to find an honest, forward-looking and constructive remedy for the economic evils of overproduction.

In the past years the petroleum industry has been content with temporary remedies. It must be apparent to all observers that in the future we must be more far-seeing. It is our obligation to assure the American public a reliable supply of petroleum products at reasonable prices. A temporary solution will not fill the need in the years to come. The industry is too large and too vital to survive the alternate periods of feast and famine which have characterized its past history. Excessively high prices and disastrously low prices for our products are equally harmful. For the good of the public and of the industry it is essential to establish a greater degree of security than has existed heretofore.

The natural gasoline industry is almost completely dependent for its prosperity upon the prosperity of the oil industry at large. Our own selfish interests invite us to co-operate wherever possible in all efforts to stabilize the oil industry.

During the year just ended, the natural gasoline industry has found its relative economic position strengthened. For a considerable interval natural gasoline commanded a higher price than U. S. Motor gasoline. From some quarters this has been the subject of criticism, but it is merely the functioning of the law of supply and demand. Statistics show that for the year ending March 31, 1928, natural gasoline comprised 11.52 per cent of the total motor fuel produced in the United States; whereas, for the year ending March 31, 1929, this percentage had declined to 11.05. East of California this percentage declined from 9.98 to 9.13. The relative supply of natural gasoline declined 8.5 per cent during the year. Such a change in the supply was bound to be reflected by a modification of the price structure.

In regard to this strengthened economic position of the natural gasoline industry we cannot sit idly by with the assurance that it will continue indefinitely. It is characteristic of our industry that the first symptoms of renewed prosperity attract new capital, which invariably results in increased production of natural gasoline and lower relative prices. In addition, the relative supply of natural gasoline in California has increased slightly during the past year. Some evidence exists that the Pacific Coast is confronted with an oversupply of natural gasoline with the result that the surplus will find its way to Eastern and Mid-Continent markets. Finally, the past year has witnessed the installation of numerous vapor recovery plants at refineries and the rapid extension of cracking processes. It is essential for the future of the natural gasoline industry that we continue unabated our efforts to widen the markets for our products.

The work of the association is carried on largely through committees. Naturally some of these committees are more active than others. However, all committees have shown splendid spirit when called upon to devote their time and attention to association problems. It is largely due to our committee members that the association has made the progress it has made during the past year.

The recommendations made last year by the Gas Testing Committee in regard to gas specific gravity determinations were put into effect. The co-operation of the United States Bureau of Standards was obtained toward the development and construction of an apparatus for determining gas specific gravity. This committee also very actively participated in the Southwestern Gas Measurement Short Course at Norman, Okla.

Committee Work

The Research and Education Commit-

(Continued on Page 184)

*Annual meeting, Natural Gasoline Association of America, Tulsa.

PRAISE ENTERTAINMENT OF SUPPLY MEN

Natural gasoline men in attendance at the annual meeting of the Natural Gasoline Association of America were loud in their praise of the entertainment furnished by the Natural Gasoline Supply Men's Association. The latter association was formally organized as an affiliated organization of the parent association a year ago. Forty-three supply and manufacturing companies are now members of the association.

J. H. Satterwhite
President, Natural Gasoline Supply Men's Association.

At the meeting this week the supply men were in charge of all entertainment features. Dutch luncheons were served on Tuesday, Wednesday and Thursday at the Mayo Hotel, where all sessions of the convention were held.

On Tuesday night several hundred men attended the stag smoker at the Crystal ballroom of the Mayo Hotel as guests of the supply men. Refreshments and several entertainment features were provided. The supply men will be hosts again on Thursday evening when the convention will be brought to a close with the annual dance at the Mayo Hotel.

A meeting of the supply men's association was held Wednesday to fill vacancies in the board of directors. The association proposes to hold its annual election of officers at the close of the calendar year. The present officers were elected last year.

ASOLINE ASSOCIATION OF AMERICA, TULSA, MAY 21

—Photo by R. B. Ward, Tulsa

Oil Exports and World Production

Expanding Shipments Result of Uneconomic Development at Home. Handicaps Foreign Market Also

By John H. Nelson
Formerly, Petroleum Section, Department of Commerce

A study of the petroleum exports of the United States emphasizes the necessity for first, a clearly defined national policy with regard to this particular phase of the industry, and second, a co-ordination of this export policy with a national conservation program which to be effective, it has been demonstrated, must of necessity include a consideration of world production and not concern itself alone with the production of the United States.

It is generally admitted that the United States, possessing approximately one-sixth of the world's unmined petroleum resources, is supplying close to three-quarters of the world's current consumption of oil. The greater part of the world's proven and possible petroleum resources are under British and Russian control under circumstances which permit of extremely limited, if any, American participation and yet our largest and most important existing export markets are the United Kingdom, Canada, Australia, India, other portions of the British Empire together with those countries immediately adjacent to, or in close proximity with, British sources of supply in Persia, and the Dutch East Indies, and Russian sources in southern Russia.

Uneconomic Production

That this constantly expanding export of petroleum products from the United States is generally the result of uneconomic production in the United States rather than the result of a deeply laid politico-economic agreement on the part of our foreign competitors or unusually efficient marketing methods by American companies is indicated in a brief comparison of values and prices.

According to the Department of Commerce, in 1927 we exported 115,398,860 bbls. of refined oils valued at $429,663,342 and in 1928 126,186,841 bbls. valued at $464,899,317, making the average value per barrel of exported refined oil approximately $2.72 in 1927 and $3.68 in 1928, or slightly in excess of 8 cents per gallon for both years. Exported gasoline was valued at the average figure of 11½ cents per gallon in 1927 and 10.6 cents in 1928, while kerosene was valued at approximately 10 cents per gallon for both years.

In comparison with these figures the average retail price of gasoline in 46 foreign cities, as of December, 1928, according to Special Circular No. 704 of the Bureau of Foreign and Domestic, was approximately the equivalent of 36 cents per gallon and that of kerosene 27 cents per gallon, giving a difference of some 25 cents for gasoline and 17 cents for kerosene, part of which are the usual transportation, distribution and sales costs, but the greater part of which is made up of foreign import duties and a multitude of taxes which alone in many cases equal or exceed the original laid down cost of the product. The average retail price referred to is, of course, a mathematical average and not a weighted average price which latter is presumed to be between 28 and 30 cents per gallon for gasoline and probably 21 cents for kerosene. It should be noted in passing that in exception to the American practice of applying the greater part of gasoline taxes, in particular, to highway construction and maintenance and thus directly aiding in the consumption of gasoline, the foreign practice in a majority of cases apply all these taxes directly for general revenue with no specific allocation to road building or maintenance.

Handicaps Development Abroad

The very movement of American petroleum exports to areas immediately adjacent to foreign oil-producing and refining centers is in itself proof of the commercial impossibility and economic undesirability of these centers offering effective competition to American oils at existing price levels even though physical resources permitted. Thus, overproduction in the United States, in addition to its demoralizing effect on the domestic industry, in effect, places a direct handicap on the progressive development of the oil industry abroad and prevents an equalization of exhaustion of this vital international resource at the expense of American interests.

The recently formed American Petroleum Export Association can do much to eliminate haphazard and uneconomic exporting of petroleum products. While distinctly prohibited by the existing Webb Pomerene Export Trade Act from agreements relating to production, it can, by allocation of markets and a pre-determining of foreign demands, indicate the desirable sources of supply which if exceeded by producing interests acting independently would be done with the previous knowledge that such excessive production would be unmarketable and have to be held for expensive aboveground storage. From a legal point of view the making public of a statement giving in detail the past consumption of each individual export market or a grouping of such markets together with an estimate of the requirements of a succeeding future period and the probable source of supply would constitute no illegality. Whether or not the producing and refining interests, separate legal and corporate entities, would choose to consider such data in planning their operation would remain to be seen.

Crude Oil Export Prices

Another possible opportunity for the Petroleum Export Association lies in the establishment of crude oil export prices at prices above those now prevailing. There is no logical reason why the benefits of lower transportation costs in pipe line crude oils should be passed on to foreign refining interests, enabling such interests by means of tariff differentials, cheap labor and special taxes to successfully operate in competition with American exporting and marketing interests. Even in the case of refineries operated abroad as subsidiaries of parent American corporations, it should be noted that it is within the power of the Export Association to so establish a relationship between the export prices of crude oil, fuel oils for cracking stock, and refined products as to be of distinct advantage to all concerned.

While in 1928, our exports of crude oil amounted to only some 19,000,000 bbls., most of which went to Canada, this figure marks an increase of almost 20 per cent over the previous year and with considerable refinery construction planned for Belgium, France, Spain and Italy the exports of crude oil may show startling increases in the near future and prove an upsetting factor in our export trade unless given due consideration.

Exports of Gasoline Gain

Exports of gasoline in 1928 registered an increase of 19 per cent over those of 1927, compared with an increased domestic consumption for the same product of approximately 12 per cent. The present general progress of road building and automobile registration abroad promises to stimulate gasoline consumption to a much greater figure. As an index may be cited the fact that a new high record was set in February by the export of American automotive products, their value being set by the Department of Commerce at $61,529,748, an increase of $13,936,000 over like exports in January and $24,972,022, or 68 per cent more than for February last year.

The previous high month record in automotive exports was set last October, with a total of $50,737,000.

Shipments of passenger cars were greater during February by 10,622 units than in January, and truck shipments exceeded January by 6,771 units. Argentina was the leading purchaser of American automobiles, with Canada and Australia next. The world demand is centering now on cheaper models of cars, and the average value of American passenger machines shipped during February was $676.

GASOLINE EXPORTS
(Barrels 42 U. S. gallons)

Destination—	1927	1928	Gain	Per cent increase
Europe	29,493,978	33,588,832	4,094,854	+ 13
North, Central and South America	6,965,678	9,493,434	2,527,756	+ 36
Far East, Australia	4,501,322	5,331,453	830,131	+ 17
Africa	1,719,713	2,287,325	567,612	+ 29
Other countries	649,473	1,155,489	506,016	+ 77
Total	43,330,164	51,856,533	8,526,369	+ 19
KEROSENE EXPORTS				
Europe	9,507,496	9,596,822	89,326	+(*)
North, Central and South America	1,624,059	1,394,440	—229,619	— 12
Far East, Australia	6,894,767	9,413,533	2,518,766	+ 36
Africa	999,498	1,054,350	54,861	+(*)
Other countries	326,282	393,469	67,187	+ 20
Total	19,352,102	21,852,623	2,500,521	+ 12

*Less than 1 per cent.

GASOLINE EXPORTS
(Barrels 42 U. S. gallons)

To—	1927	1928
Belgium	1,126,085	1,273,745
Denmark	1,099,945	970,271
France	6,832,669	7,726,261
Germany	1,230,997	1,318,250
Irish Free State	172,674	170,753
Italy	982,721	1,464,690
Netherlands	1,674,054	1,884,855
Norway	282,797	287,155
Portugal	184,323	223,558
Spain	984,202	967,001
Sweden	1,232,641	1,561,523
United Kingdom	13,690,870	15,640,770
Canada	3,144,539	4,409,565
Panama	96,548	180,142
Mexico	364,465	500,430
Cuba	488,867	809,224
Dominican Republic	72,189	86,731
Argentina	1,349,996	1,782,798
Brazil	942,660	1,354,131
Uruguay	353,355	405,876
Other South America	153,059	264,537
China, Hongkong	321,155	244,581
Japan	356,044	737,723
Philippine Islands	292,704	377,428
Australia	2,470,402	2,751,815
New Zealand	1,061,016	1,219,906
British South Africa	657,976	931,602
British West Africa	234,940	348,912
French Africa	558,302	700,854
Morocco	83,004	134,242
Portuguese Africa	84,500	94,831
Spanish Africa	50,991	77,283
Other countries	649,473	1,155,039
Total	43,330,164	51,856,533
In bulk	38,741,589	47,388,881
In containers	4,588,575	4,467,652

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PRAIRIE OIL & GAS CO. STARTS SUBSTANTIAL PRICE INCREASES

The expected rise in crude prices in the Mid-Continent Field by the Prairie Oil & Gas Co., following the removal of proration in Oklahoma, came on Monday, May 20. The increases range all the way from 17 cents per barrel to 41 cents per barrel, but the weighted average grade of crude in the sweet crude producing districts in Kansas, Oklahoma and North and Central Texas, which is 37 degrees was increased 27 cents. The Prairie price was met by all the leading crude buyers in the same territory with the exception of the Magnolia Petroleum Co., which met the Prairie prices from 32 gravity upward but made its own price on oils of lower gravity, being 5 to 20 cents under the Prairie in southern Oklahoma where the Magnolia is the largest purchaser of oils below 32 gravity, but from 10 to 15 cents higher than the old Magnolia schedule put into effect January 24.

The Prairie Oil & Gas Co.'s new schedule, its old schedule and the amount of increase are given in the following table:

	Old price	New price	Increase
Below 25 degrees	$ .60	$ .85	$ .25
25-25.9 degrees	.66	.90	.24
26-26.9 degrees	.72	.95	.23
27-27.9 degrees	.78	1.00	.22
28-28.9 degrees	.84	1.05	.21
29-29.9 degrees	.90	1.10	.20
30-30.9 degrees	.96	1.15	.19
31-31.9 degrees	1.02	1.20	.18
32-32.9 degrees	1.08	1.25	.17
33-33.9 degrees	1.11	1.30	.19
34-34.9 degrees	1.14	1.35	.21
35-35.9 degrees	1.17	1.40	.23
36-36.9 degrees	1.20	1.45	.25
37-37.9 degrees	1.23	1.50	.27
38-38.9 degrees	1.26	1.55	.29
39-39.9 degrees	1.29	1.60	.31
40-40.9 degrees	1.32	1.65	.33
41-41.9 degrees	1.35	1.70	.35
42-42.9 degrees	1.38	1.75	.37
43-43.9 degrees	1.41	1.80	.39
44 and above	1.44	1.85	.41

The Magnolia Petroleum Co.'s schedule on crudes below 32 gravity is as follows:

	Old price	New price	Increase
Below 26 degrees	$ .60	$ .70	$ .10
26-26.9	.65	.75	.10
27-27.9	.70	.85	.15
28-28.9	.75	.90	.15
29-29.9	.80	.95	.15
30-30.9	.90	1.05	.15
31-31.9	1.00	1.15	.15

32 and above same as Prairie schedule.

On Tuesday morning the Ohio Oil Co. increased the price of crude 15 cents per barrel in Illinois, Princeton, Lima, Indiana, Wooster and western Kentucky, and 10 cents in Plymouth, and at the same time announced the following increases in Wyoming: Elk Basin and Grass Creek, 29 cents; Lance Creek, 30 cents; Rock Creek, 22 cents; Big Muddy, 15 cents, and Mule Creek, 10 cents.

The contracted price of the Shell Petroleum Corp. for Muskegon Dundee sand oil increased to $1.25 for boat and 95 cents for rail shipments today, with a general increase on a Mid-Continent gravity basis for Traverse sand crude, which averages about 38 and will take the $1.55 price. W. F. Simrall Co., of Cincinnati, pays $1.60 per barrel for Dundee crude at loading docks under contract. The Standard Oil Co. of Indiana met the highest Shell price for Dundee oil with a new posted price of $1.25 per barrel.

The Imperial Refining Co. increased Petrolia and Oil Springs, Ontario, oil 15 cents per barrel.

On Tuesday, May 21, the Midwest Refining Co. announced these advances in Wyoming crude: Grass Creek and Elk Basin, 29 cents; Osage, 29 cents; Salt Creek to the new Mid-Continent schedule,

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Fire Hazard Caused by Sulphur Oils

Examples Attributed to Spontaneous Oxidation in West Texas Fields. Declared Greatest Menace to Permanent Storage

FORT WORTH, Tex., May 20.—The omnipresent problem of corrosion in West Texas provokes much argument in periodical cycles, but in recent months corrosion and its relation to fire hazards in the Permian Basin area has been the angle to which engineers have been giving particular attention.

Corrosion in West Texas doubtlessly is costly, but how costly is a matter of no little debate. Some companies contend the corrosion bugbear has been described too graphically and in reality is not such an alarming problem after all. Other company representatives hold to a directly opposite opinion and both sides produce arguments to support their contentions. So in the end the economic side of the problem resolves itself into a battle of words and figures between manufacturers and buyers.

However, since many fires in the fields and on tank farms have been directly traced to spontaneous oxidation more thought has been directed to the problem in relation to fires. There have been many fires in West Texas of a doubtful origin. Some were of the opinion these fires were caused by static electricity while others believed spontaneous oxidation was the cause. Several fires have been traced directly to the latter cause and because of this some production men believe the fire hazard caused by sulphur oils is as serious as the problem of damage to metal by corrosion.

Hazard in Storage

According to J. B. Ray, an engineer specializing in corrosion and with several years of experience with West Texas problems, West Texas crudes will increase the fire hazard the longer they are kept in steel storage. Sulphur in the oil and gas which breaks down at atmospheric pressure deposits a scale or spongy mass on the metal with which it comes in contact. Either of these deposits is destructive to the metal and when they come in contact with fresh oxygen a fire hazard is present. This hazard is the greatest menace to permanent storage and of course is a still greater menace when the farm is located in a producing field.

This scale or mass generally forms on the under side of the deck although sometimes it is found in other parts of the interior of the tank. However, it rarely forms on the metal which is immersed in fluid constantly. This scale or accumulation has been found in tubing, line pipe and in gas traps, showing that this condition is not confined to tanks alone.

This mass becomes a fire hazard whenever it forms on metal. How serious a hazard it is depends on the amount of fresh oxygen likely to reach it. This was demonstrated in the fact that inspections have shown that when chunks of the accumulation were pulled loose from the deck and exposed to fresh air it often starts burning. Sometimes, but rarely it does not start smoldering but nevertheless it remains a fire hazard because there is no way of determining when the proper fresh oxygen contact is present and it will ignite. Most frequently this mass will start smoldering immediately when exposed to fresh oxygen but sometimes its action is tardy, and not so rapid as the general rule. It is not necessary to remove the scale from its seat of origin for it to become a fire hazard. When the proper mixture of fresh oxygen is present it will start smoldering and it is possible for this mixture to get inside the tank.

Spontaneous Oxidation

Spontaneous oxidation is believed by many to have caused the explosion of a 80,000-bbl. empty tank in Reagan County several months ago. This tank had just been steamed when the explosion occurred. The temperature was around 45 degrees at the time while the inside temperature of the tank was reported to be around 70 to 80 degrees. Some advance the theory that spontaneous oxidation started when the manhole at the bottom of the tank was opened to permit cleaning and let fresh air reach the sulphur accumulation on the underside of the deck. When the explosion occurred the top was blown into the air and part of it fell on the outside of the tank and the remainder fell inside. No evidence was found to lead to the conclusion that carelessly tossed matches or cigarettes caused the fire.

An example of interest is found in the experience of an operator in Crane County who was using a wood tank on a receiving battery. When production of the lease had declined to a point where the services of this tank were no longer required it was taken down. When the straps were cut the staves collapsed and fell towards the center.

When the staves fell it is presumed they broke the deposits on the bottom and permitted fresh air to reach it causing spontaneous oxidation. Within a short while the smoldering fire was discovered by the men tearing down the tank. Before the oil-soaked staves were ignited workmen equipped with shovels smothered the fire with sand.

The contractor taking the tank down closely questioned all of the men working on the job and was satisfied no open fire was present at the time. Later the sand was shoveled away in order to salvage the staves. This was done carefully but when the work reached a point where most of the sand was removed the deposits on the bottom again started smoldering. A short while later a smoldering fire was discovered on one of the shovels. Upon examination this proved to be part of the tank bottom deposit that clung to the shovel when the sand was being removed.

Started Smoldering

Another strange happening recorded in the Church and Fields Pool in Crane County was in the experience of a crew cleaning out a well. When the bailer was dumped a spongy mass about the size of a cocoanut fell in the slush trough. This mass ignited in about two minutes and was immediately extinguished. On the next trip the crew caught the mass and carried it off the rig floor. Within 45 seconds after it had been exposed to fresh air and sunlight it started smoldering.

It is reported that on another lease in the same pool a crew was pulling tubing and stacking joints in doubles upright in the derrick. Suddenly it was observed these joints were smoldering. Rapid action on the part of the crew in extinguishing the fire probably prevented a serious loss. These are only a few of the many such occurrences in the fields showing that the sulphur crude is not only proving costly in the erosion of equipment but is a serious fire and safety hazard.

Within the past few months several large storage tanks have burned and the origin of the fires was not definitely determined. Some of these started while a severe electrical disturbance was in prog-

(Continued on Page 181)

Road Laws Declared to Be Antiquated

Oklahoma's Regulations Concerning Weight and Dimensions of Load Not in Keeping With Improved Construction of Trucks

By Thomas F. Smiley

Efforts of the Petroleum Motor Transport Association of Oklahoma will be directed toward such revision of the state's road laws as will promote construction of first class highways and at the same time fix regulation of load weight to conform with advanced engineering practice in the building of trucks and trailers. This was decided at a meeting of the association last Friday evening at the offices of the Leland Equipment Co., Archer Street, Tulsa. The meeting was preceded by a dinner provided by the Leland company.

Among those who took an active part in the discussion were H. R. Leland, president of the Leland company; F. B. Carr, vice president; R. L. Kennedy, factory representative of the Utility Trailer Manufacturing Co, Los Angeles, Calif.; Colonel T. D. Harris, Marland Oil & Refining Co., Ponca City; S. C. Phillips, Sinclair Oil & Gas Co.; R. S. Mayo, Gypsy Oil Co., Tulsa, president of the Petroleum Motor Transport Association; C. G. Price, Shell Petroleum Corp., Tulsa; E. L. Bell, Shaffer Oil & Refining Co., Drumright; G. L. Wheatley, Empire Companies, Bartlesville, and C. H. McBurney, Transcontinental Oil Co., Tulsa.

The present laws of Oklahoma, enacted about 6 years ago, limit the gross weight of a 4-wheel truck to 20,000 pounds and that of a 4-wheel trailer to 28,000 pounds. Since then truck construction has changed so that the front wheels of a truck can sustain a greater weight, but because of the limitations imposed by an antiquated law proper advantage of this improvement cannot be taken.

New Types of Vehicles

Since the old law was passed three new types of vehicle have been introduced and no provision is made for them under the old law. These vehicles are the pole trailer, the semitrailer and the 6-wheel truck and trailer.

Mr. Carr presented to the association tentative suggestions of provision for inclusion in the new road legislation which it is hoped to have enacted. These included: weight of 800 pounds per inch of width for either solid rubber or pneumatic tires; 96 inches over-all width of load for trucks and trailers (the present maximum is 90 inches); 65 feet over-all length (any number of units); maximum weight on any one axle of a two or more axle unit, 16,000 pounds; maximum weight of one 2-axle unit, 28,000 pounds; maximum weight of one 3-axle unit, 38,000 pounds; maximum weight of 1-axle pole trailer or semitrailer, 14,000 pounds.

There was virtual unanimity among the members of the association concerning the reasonableness of the foregoing provisions, but there was diversity of opinion as to what the provisions of the law should be with reference to speed. It was decided that a draft of suggested provisions for new road legislation should be placed before the whole membership for careful consideration and definite recommendation.

"Six Wheel Law" Favored

Speakers commented favorably on the "six wheel law" now in operation in six states and expected to be passed by others. Colonel Harris favored removal of gross weight provisions and substitution of regulations based on tire surface area. It was pointed out that the problem of oil field transportation was becoming more serious daily as a result of the manufacture of heavier and still steavier machinery. The adoption of 6-wheel trucks and trailers permits heavier loads with less impact on the pavement.

Mr. Kennedy, who is visiting various states where new road legislation is in contemplation, pointed out that a 6-ton 6-wheel truck actually imposed less impact on pavement than a 2-ton 4-wheel truck. The impact of the former vehicle is 7,000 pounds and of the latter 7,300 pounds when both are provided with pneumatic tires. He urged the need of uniform legislation concerning load provisions in the various states for the obvious reason that a driver with a load conforming to the laws of his own state might cross the state line and be arrested as the result of different legal stipulations.

It was stated that tests conducted by the United States Bureau of Public Roads have shown the 6-wheel truck as the best solution of the problem of maximum pay load with minimum damage to highways. In these tests pressure below the road surface was measured for two trucks, each carrying 10,000 pounds, one with four wheels and one with six wheels. The maximum subsoil pressure with the 6-wheel truck was 2 pounds and with the 4-wheel truck 6½ pounds—three times the pressure for the same pay load.

Results of Impact Tests

The effect of impact on the highways was tested by driving one 6-wheel and four 4-wheel trucks over an obstruction 2 inches high at a speed of 17½ miles an hour. The results of these tests, as reported by General Albert C. Dalton, Quartermaster Corps, U. S. A., were as indicated in the following table:

Kind of truck and tires	Gross weight pounds	Pay-load tons	Impact, pounds
6-wheel pneumatic	28,700	8¾	7,000
4-wheel pneumatic	27,900	6	11,900
4-wheel solid	19,800	5	19,900
4-wheel solid	11,800	2	21,000
4-wheel pneumatic	11,800	2	7,300

Thus the 4-wheel truck carrying a pay load of only 2 tons showed in these official tests impacts greater than those produced by the 6-wheel truck carrying a pay load of 8¾ tons. General Dalton's report on these tests indicated the following advantages of the 6-wheel truck: Greater load with less subsoil road pressure; increased road carrying capacity by decreasing road damage and permitting greater tonnage in less road space; flexible double rear axles give evenly distributed pressure without pounding shock either against the road or counteraction of such force on the truck and its contents.

Bureau Chief Quoted

Thomas H. MacDonald, chief of the Bureau of Public Roads, was quoted

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MR. BIGNELL BECOMES MEMBER OF THE OIL AND GAS JOURNAL STAFF

L. G. E. Bignell, whose years of service as an engineer in major oil fields of the United States has given him wide acquaintanceship in the industry, will join the staff of The Oil and Gas Journal on June 1 as petroleum engineering editor, succeeding R. Van A. Mills, who has resigned to become vice president in charge of production for the Marland-Hudson Bay Oil Co.

Mr. Mills became Petroleum Engineering Editor of The Oil and Gas Journal on August 1, 1928, resigning from the United States Bureau of Mines to accept the position. He has had extensive

L. G. E. Bignell

experience in engineering both in this country and abroad and his work with The Oil and Gas Journal attracted world-wide attention.

For a number of years Mr. Bignell has given special study to problems dealing with the handling of oil and gas on the lease and pioneered in the development of the gas-tight bolted tanks and this led to an intensive study of corrosion of oil field equipment, especially where this equipment was used to handle oil carrying sulphur and hydrogen sulphide gas. He has written numerous reports and articles on this subject.

During this period Mr. Bignell has also done special work on the development of the chain driven sand reel, heavier type of bolted steel derricks, steel equipment for cable tool wells and various other items of equipment that have become necessary within the past decade to permit drilling the ever deepening holes that now are the practice and not the exception in the oil industry. This work has taken him to all the principal oil fields of this country east of California.

Early Engineering Work

In his earlier work, Mr. Bignell was associated with the engineering firm of Taylor and Brunton, of Denver, Colo., for three years, and he regards this experience as having been of marked value to him. The late D. W. Brunton, of this firm, was a past president of the American Institute of Mining and Metallurgical Engineers and internationally known as a mining engineer.

Before Mr. Bignell changed over to the petroleum industry in 1919, he was associated with the Denver Engineering Works of Denver during the development of the electric hoist to mining problems and the improved methods of classification and ore treatment in metallurgy which have led that industry to its present high efficiency in ore dressing.

He was also associated with the Colorado Iron Works Co., of Denver, the Mine & Smelter Supply Co. of El Paso, Texas, and the Parkersburg Rig & Reel Co. at Tulsa, all in engineering capacities.

In 1912 Mr. Bignell and W. J. C. Rambo opened an office as consulting engineers in Denver and later he and James M. McClave conducted a similar business in that city.

After attending the public schools and the Manual Training High School in Denver, Mr. Bignell took special courses in chemistry, metallurgy and geology at the University of Utah, Texas School of Mines and University of Tulsa. He has been a member of the Tulsa Geological Society since 1922; was a member of the American Society of Mechanical Engineers for 5 years, serving as secretary for the Mid-Continent section twice and as chairman once, and later joined the American Institute of Mining and

R. Van A. Mills

Metallurgical Engineers. He is serving at the present time as chairman of the Mid-Continent section of the last named organization.

Mr. Bignell was born in Cobham, Surrey (near London), England, in 1879.

GEORGE COYLE, NOTED PIPE LINE OFFICIAL, SUCCUMBS TO ILLNESS

George Coyle, general superintendent, and a member of the board of directors of the Prairie Pipe Line Co., died in St. John's Hospital, Tulsa, Saturday, May 18.

Mr. Coyle had been in ill health over a year. In May, 1927, he went to Kansas City where a major operation was performed. He remained in the hospital for months and improved sufficiently to permit his removal to Tulsa, his home city. He was taken to St. John's Hospital where everything was done to save his life that science could devise or loving hands perform, but Mr. Coyle's case was hopeless. Nothing but his powerful constitution and sanguine disposition has kept him alive for weeks.

Mr. Coyle is survived by his wife and one daughter, Miss Carmen Coyle and three grandchildren, the children of his son, the late Harold Coyle.

The funeral was held Tuesday morning. Solemn high mass of requiem was said in Holy Family Church in Tulsa, with Monsignor J. F. Maguire as celebrant. Monsignor R. Sevens pronounced the eulogy. The body was laid to rest in the Catholic Cemetery in Tulsa.

The services were attended by many officials and employes of the Prairie companies from all over the system as well as a large number of Tulsa and out of town oil and gas men and others.

The active pallbearers were J. J. Stines, A. W. Drohen, J. D. Moroney, M. E. Fannon, L. H. Angove and M. J. Flanagan. The honorary pallbearers were: W. F. Gates, C. H. Kountz, F. M. Wilhelm, F. A. Louy, C. E. McPoland, T. R. Lott, J. J. Linehan, W. S. Fitzpatrick, N. K. Moody, D. H. Kelsey, H. C. Fitzpatrick, J. A. Hollihan, T. J. Flannelly, F. S. Cook, J. A. Wolf, J. R. Manion, D. C. Stewart, M. Maron, Henry McGraw, E. A. Leroux, R. V. Hanrahan, E. A. McPherson, J. H. Markham, J. H. Evans, Dr. C. D. F. O'Hern, Dr. W. A. Cook, M. J. Delaney, H. P. Taubman, J. J. Conry, J. A. Veasey, J. J. Larkin, H. N. Gries, J. B. Sheehan, Charles Fitzgerald, John Fertig, J. P. Flanagan, George F. Bell and L. J. Martin.

Few men in the history of crude oil transportation have reached and held a place in the regard of oil men that George Coyle won by his ability and square dealing.

His pipe line experience, covering a period of 46 active years, 18 years of which he was general superintendent of the largest pipe line system in the world, made him an outstanding figure in the oil industry. His splendid personality and fine mind won for him many friends of every degree of social and financial standing, all of whom sincerely regret his passing.

Mr. Coyle was born in Olean, N. Y., in 1864. After finishing his schooling,

George Coyle

he entered the employ of Capt. N. V. V. Franchot of Olean, but at the age of 18 he entered the service of the United Pipe Line Division of the National Transit Co.

In 1884, Mr. Coyle was transferred to the Buckeye Pipe Line Co., the main offices of which were in Lima, Ohio. In the seven years that followed he received numerous transfers and promotions

(Continued on Page 183)

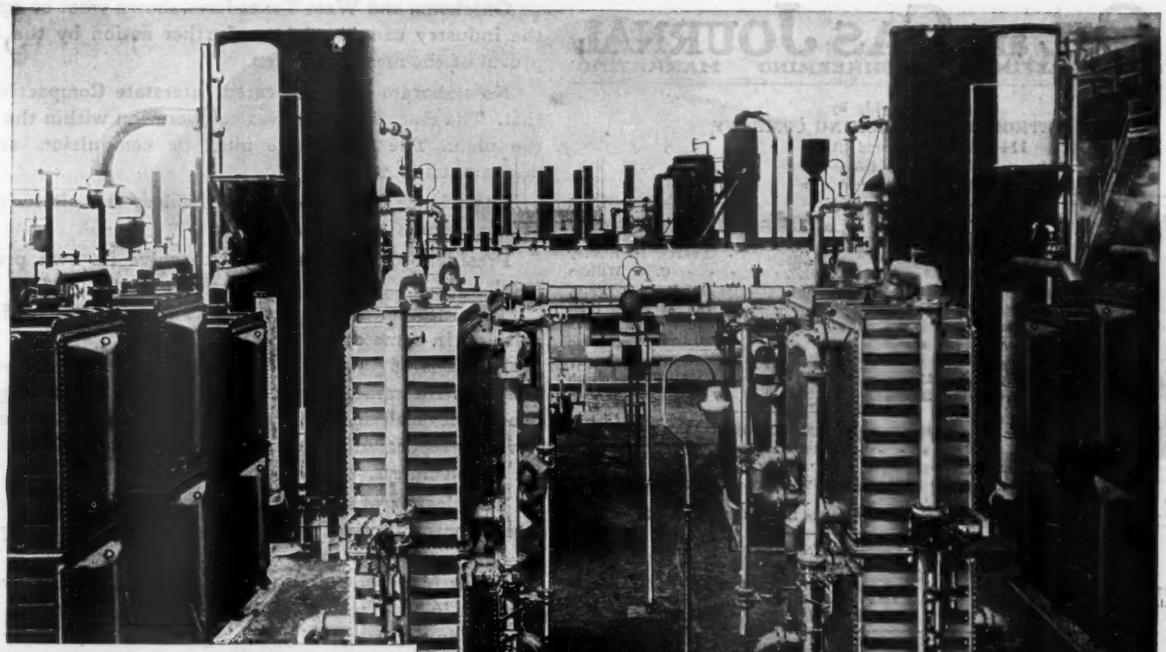
IMPORTANT CHANGES IN PRAIRIE P. L. CO. EFFECTIVE JUNE 1

J. J. Linehan

T. R. Lott

M. E. Fannon

The death of George Coyle, general superintendent of the Prairie Pipe Line Co. will cause a number of changes in the personnel of the company's officials. W. F. Gates, of Independence, Kans., president and general manager, announced on June 1 the following changes will be effective: J. J. Linehan, Tulsa, will become general superintendent of the Kansas-Oklahoma division, with jurisdiction as far south as Shawnee; Thomas R. Lott, of Eastland, Tex., will become general superintendent of the southern Oklahoma and Texas division and M. E. Fannon, of Tulsa, will become assistant to the general manager with headquarters in Tulsa. C. E. McPoland of Kansas City, will continue as general superintendent of the Trunk System Northern division.



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WHAT GOOD IS A COMPACT?

Since Secretary Wilbur suggested the idea of an Interstate Compact for the conservation of oil the industry has been thinking it over.

And the longer it has thought about the idea the less it liked it.

The publication of a purported sample compact said to have been submitted to the governors of oil-producing states showed how far such a scheme might be carried and how thin is the line between governmental co-operation and governmental control.

The industry has been warned continually that if it did not get together and solve its own problems in its own way it would have regulation forced upon it. The conservation plans which have been more or less successfully carried out in Oklahoma and West Texas during the past two years were designed and executed by the industry itself and approved by the state authorities.

Neither State has sought to impose regulations upon the operations of the industry other than those framed by the industry itself.

The States recognized that the industry was coping satisfactorily with conditions and there was no excuse for state interference which could be provoked only by the failure of the industry to co-operate.

This is the case today.

The Federal Oil Board has declared it has no control over the general production of oil, that if there is to be such control it must rest with the States and that if the oil-producing States will enter into an Interstate Compact on that policy the board will ask Congress to approve it.

Any such control under such an Interstate Compact would mean the establishment of a regulatory commission which would henceforth control the operations of the industry.

The notion that it would merely herd the recalcitrant operators into line with the majority, leaving the majority free, is too juvenile to be entertained.

But, it may be said, what can be done about those who refuse to go along? Well, as things are shaping, they will have to decide for themselves, just like the rest, whether they are going to co-operate within the industry or see control of the industry taken by some official commission.

Oklahoma and West Texas have shown what co-operation within the industry can do with no further action by the State than approval of the measures taken.

No elaborate or complicated Interstate Compact was needed for that. The essential thing was co-operation within the industry upon the plan. The alternative must be compulsion, and compulsion means outside control.

Experience has shown that the less the oil industry relies on official boards the better.

President Coolidge's advice to solve its own problems is still good.

The Interstate Compact idea is too dubious to delay seeking a solution in some other direction.

In the first place its constitutionality has not been established. Previous Interstate Compacts dealt with neighboring arrangements over joint or adjacent interests and in no case with conservation of a widely separated raw material in which other states have an interest as consumers.

This last is almost certain to provoke conflict in Congress between representatives from producing and consuming states, making its approval conjectural.

Delay in approval, either in the oil-producing states or in Congress, or in both, would likely be followed by further delay awaiting judicial interpretation by the highest court, possibly nullifying the whole compact.

Meanwhile the urgency for remedial action would be disregarded.

Even if approved, the compact would, as Judge C. B. Ames, of The Texas Corporation, says, give no state any greater control within its own boundaries than it now has, while each state can do now all that it could hope to do under a compact. And so far as interstate relations are concerned, Congress can do as much or as little now as it could do with a compact.

The states, he points out, can each regulate the conservation of its own resources without any question of violating the antitrust laws.

Oklahoma and Texas have been doing it and California is carrying it a step farther.

Conditions, moreover, might arise with changing situations in the different states that would require cumbersome adjustment under a compact, that can be disposed of simply at present by a state's own action.

All the discussion and presentation of various plans has had one good result—clearing the air.

The industry now sees that the fear of federal interference which delayed co-operation so long was unfounded. It is seen that when the industry does co-operate on a practical plan state officials can be shown its advisability for the state as well as for the industry.

It has been shown, also, that the chief difficulty is with those within the industry who think the old ways are going to continue. The suggested Interstate Compact with all its implication of government control ought to convince them differently.

A lot of the traditions and practices of the industry in the older days are due for a shaking-up in the next few years.

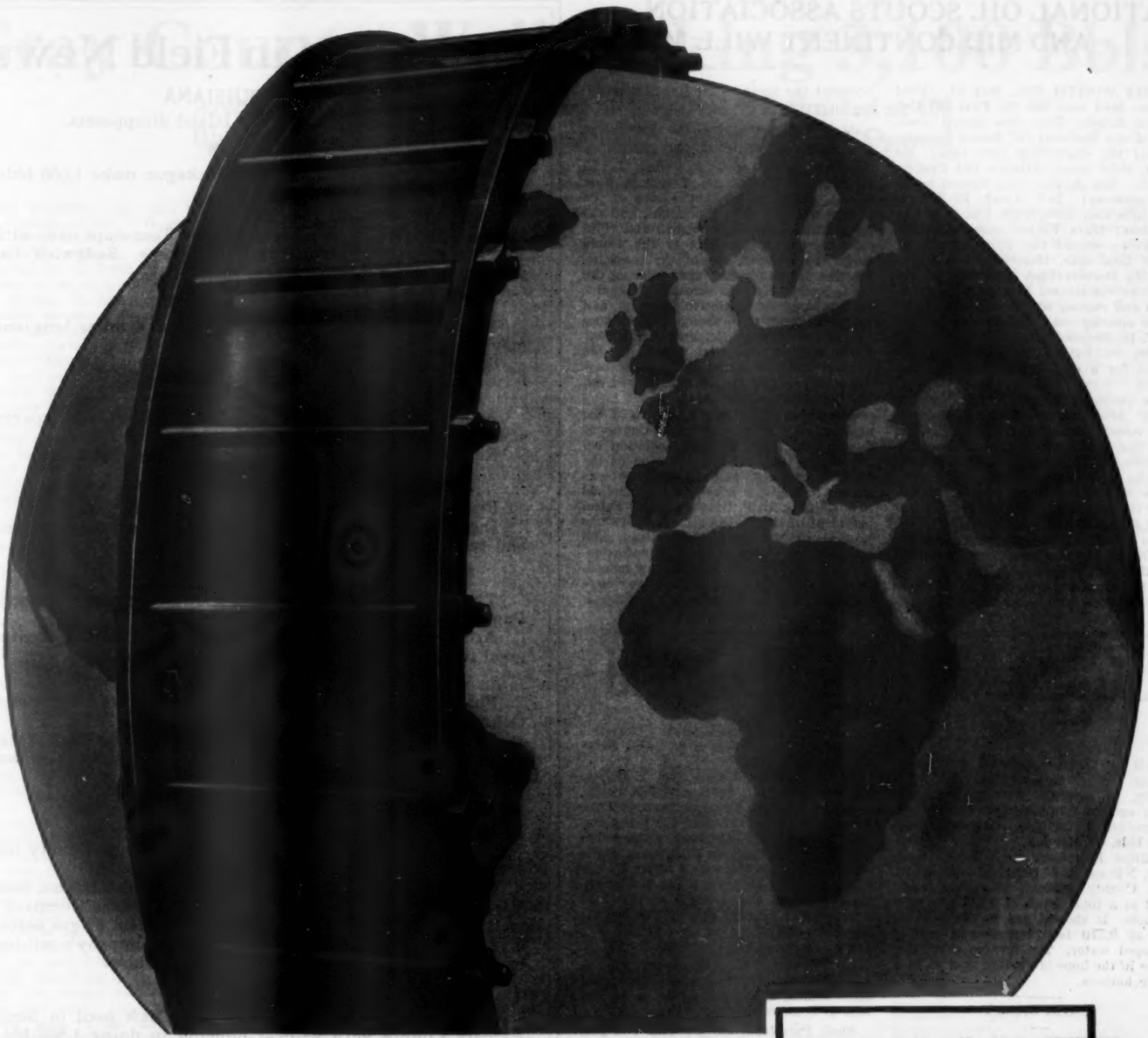
Five years ago the suggestion of co-operation in the industry was laughed at, but Seminole and West Texas and California made them take it seriously. Successive years of broken refinery markets led to greater care in winter production, but that lesson may have to be gone over again.

Established customs, such as lease forms, may have to be revised in view of present-day conditions and prospects, leading to more conserving methods of operation.

Most important of all has been the centering of attention upon the required production to meet the estimated demand, shown in the proposal to limit output this year in line with that of 1928.

Once the industry gets to thinking of production in terms of consumption requirements the fight for stabilization will have been more than half won.

The education of the individual producer and refiner on that point will do more than all the panaceas that have been invented.



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NATIONAL OIL SCOUTS ASSOCIATION AND MID-CONTINENT WILL MERGE

FORT WORTH, Tex., May 21.—Ford Turner, land man for the Pure Oil Co., at San Angelo, Tex., was elected president of the National Oil Scouts Association at the convention here today. Ed Dilley, chief scout, Atlantic Oil Producing Co,, San Angelo, was elected secretary-treasurer; "Bill" Leisk, El Dorado Pipe Line Co., Shreveport, La., first vice president; Dave Finley, scout, Marland Co., Pecos, second vice president; P. G. Booth, land man, Humble Oil & Refining Co., Breckenridge, chairman of the executive committee. The election of officers and reading of the minutes of last year's meeting was followed by a talk by W. D. Holcomb, former mayor of San Angelo, inviting the association to San Angelo for a convention whenever they desired.

The proposed merger of the National Scouts Association and the Mid-Continent Scouts Association was approved with the understanding that associate members should not have a vote or hold office in the merged organization. A committee was appointed to meet a committee of the Mid-Continent association within 30 days and work out details.

The report of the committee on the merging of the two scouts organizations and the presentation of a desk set and lamp to John Langston, retiring secretary and treasurer, and miscellaneous topics occupied the business meeting this morning.

Jack Hott, manager of the Association of Commerce, delivered the address of welcome at the opening session. L. E. Barrows, of The Texas Company, Fort Worth, talked of the importance of the scouts' work to their companies, and the opportunities for distinguished and valuable service on the part of the scouts make the position one of the most attractive open to young men entering the oil industry. He also stressed the point that a scout's initiative, energy and judgment often were the deciding factors in his company participating in a new field, and that a scout should be the first to get the information on a new discovery, get it to his company first, and get it correctly.

Discussion of the amalgamation of the association with the Mid-Continent Scouts and Land Men's Association occupied the first afternoon session of the business meeting, and a committee was chosen to consider a satisfactory method of combining. R. P. Brewer, Jr., of Tulsa, president of the Mid-Continent body, was present at the business meetings, and brought the views of that organization.

Copies of "The Swab," the new monthly publication by the association, were distributed to the men as they registered.

Late News from the Field

KANSAS

Shell Petroleum Corp.'s No. 1 Lygrisse, SE cor. NE Section 15-26-2e, Sedgwick County, a wildcat completed several weeks ago, is retaining its steady flow, and gauged 1,726 bbls. on Sunday and 1,540 bbls. on Monday.

Phillips Petroleum Co.'s No. 1 Legleeter, NE cor. NW SE Section 10-16-18, Rush County wildcat, has been abandoned at a total depth of 3,757 feet as a dry hole. It showed gas in the Gorham sand at 3,570 feet, but deeper drilling developed water. The owners carried it deeper in the hope of finding another producing horizon.

CALIFORNIA

LOS ANGELES, Calif., May 21.—Olympic Oil & Refining Co. opened another oil field in Santa Barbara County when its wildcat blew in doing 1,500 bbls. relatively clean 25 gravity oil daily from 2,438 feet. Numerous small holdings promise intensive drilling unless the bit is halted by conservation movement.

St. Helens Petroleum Co.'s No. 1 Hill at Santa Fe Springs came in under natural flow doing 10,000 bbls. of clean 34 gravity oil daily. George Getty's No. 28, another O'Connell zone completion, came in doing 3,900 bbls. daily.

OKLAHOMA

The Simms Oil Co.'s No. 1 Lester, SE NE NE, Section 19-6-4, Pottawatomie County, the discovery well in the Asher Pool, produced 3,535 bbls. on Monday morning's gauge. This is the same day that the Prairie Oil & Gas Co. brought in the south offset. The previous day's gauge of the discovery well was 3,550 bbls.

The Independent Oil & Gas Co.'s No. 1 Rhodd, NW cor., Section 16-7-4, Pottawatomie County, which was producing from the Hunton lime, and was drilled deeper, is now in the Simpson lime and is producing 1,200 bbls. a day at 4,012-48 feet. The owners were attempting to reach the Wilcox sand and test its potentialities in this area.

Empire Oil & Refining Co.'s No. 1 Fish, SE cor. NE, Section 17-7-8, east Seminole County, is producing from a sandy shale at 2,840-47 feet. The well has been completed as a gas well gauging 7,000,000 feet.

The Houston Oil Co.'s No. 1 Wyatt, NE cor. NW SW, Section 17-7-4, Pottawatomie County, an important well on account of having extended the producing area in the St. Louis Pool, gauged 900 bbls. from the Simpson lime, total depth 4,186 feet. It is the south offset to the Magnolia Petroleum Co.'s No. 1 Latimer which started the drilling in the new area several months ago by flowing 2,000 bbls. daily.

Magnolia Petroleum Co.'s No. 1 Thompson, NW cor. NE NE, Section 18-7-6, Seminole County, has been abandoned after finding 3,500 feet of water in the hole at 5,056-60 feet.

Shell Petroleum Corp.'s No. 1 Tiger, SE cor. NE, Section 5-6-8, east Hughes County, is in the Simpson lime at 4,568-4,629 feet with 2,500 feet of salt water in the hole. The well will test the Wilcox horizon before it is completed.

In the Oklahoma City Pool five drilling wells are below the 6,000-foot level and two of these are below 6,125 feet. The deepest drilling well in the pool is the Mid-Kansas Oil & Gas Co.'s Fortson, C SW NE, Section 24-11-3w, drilling in sandy shale at 6,182 feet. Sinclair Oil & Gas Co.'s No. 1 Stamper, NE cor. SW NW, Section 30-11-2w, has successfully mudded off the gas at 6,120 feet and is drilling ahead at 6,135 feet.

Indian Territory Illuminating Oil Co. has three drilling wells below 6,000 feet. The deepest is No. 1 Emerson-Joyce, NE cor., Section 25-11-3w, drilling in sandy shale at 6,060 feet; No. 1 Trosper, C NE SW, Section 13-11-3w, drilling in shale at 6,031 feet, and No. 2 Bodine, SW cor. NE SE, Section 24-11-3w, drilling at 6,006 feet.

Reiter-Foster Oil Corp.'s No. 1, C SW SE, Section 5-19-1w, Payne County, wildcat, was opened Tuesday morning at 9 o'clock and the first 45 minutes it flowed 89 bbls. in the tanks, then stopped flowing. The owners are preparing to drill deeper in the pay horizon.

Tom Slick Oil Co.'s No. 1 Bledsoe, NW cor. SW NW, Section 20-6-4, Pottawatomie County, an offset to the Simms Oil Co.'s discovery well in the Asher Pool has the top of the Viola lime at 3,630

(Continued on Page 184)

High Spots in Field News

NORTH LOUISIANA

Dixie company's test in Pine Island disappoints.

MICHIGAN

Five of 12 new producers in Muskegon make 1,000 bbls. each.

KANSAS

Good oil showing in Trego County. Test slops over with 35 gravity crude in northwestern Kansas. Sedgwick has produced 2,000,000 bbls.

SOUTHWEST TEXAS

Refugio Field growing in importance, 4 miles long and may be 4 miles wide.

Serpentine Pool in Bee County possible.

OKLAHOMA

Asher Pool gets another good well. Offset to discovery starts at 120 bbls. an hour.

Removal of proration has little effect on production.

ROCKY MOUNTAIN AREA

Frannie structure in Wyoming attracts notice.

Increasing activity in region due to lease requirements and resumption after winter.

NORTH TEXAS AND PANHANDLE

The Texas Company's No. 1 Bowers in Gray County, Panhandle, has increased its flow to 3,100 bbls.

Archer County well surrounded by dry holes estimated good for 400 bbls.

WEST TEXAS

Phillips Petroleum Corp. gets big showing of oil in Pecos County test 9 miles from Fort Stockton.

Mid-Kansas-Transcontinental companies' No. 26-A Yates flows for 15 minutes at rate of 8,028 bbls., while crew was trying to pull out the tools.

Deepest well makes new record, flowing 2,550 bbls.

GULF COAST

Two new deep wells at Barbers Hill. Orange County test shows water.

Possible new dome production at Dog Lake Bayou, East Terrebonne Parish, Louisiana, where The Texas Company's well blew out, estimated making 10,000,000 feet of gas before bridging. Bottom in oil showing. Same company's wildcat in Plaquemine Parish picked up good oil show.

CALIFORNIA

Olympic Oil & Refining Co. opens new pool in Santa Barbara County with wildcat blowing in doing 1,500 bbls. relatively clean 25 gravity oil from 2,438 feet. Small holdings threaten intensive development unless checked by conservation movement.

St. Helens Petroleum Co.'s No. 1 Hill, Santa Fe Springs, flows 10,000 bbls. clean 34 gravity oil.

George Getty's No. 28, another O'Connell zone well, made 3,900 bbls.

California gas conservation law signed by governor, effective at once, but may require 30 days for enforcement.

PRESIDENT DAWES SAYS OUTLOOK SATISFACTORY

CHICAGO, May 20. — Henry M. Dawes, president of the Pure Oil Co., in his annual report said recovery of the industry last year from the 1927 depression resulted in the largest earnings in the company's history, but it is impossible to forecast with any accuracy the prospects for next year.

On the assumption that the industry may meet with reasonable success in its co-operative efforts for orderly production, the outlook is satisfactory. The company has made material progress, particularly in the last year, not only financially, but in completing the integration of its functions.

The ratio between production, refining capacity and marketing outlets is a vital matter, and while requiring constant study and effort is at the present time remarkably well balanced. An important factor in this integration is territorial conditions, involving the location of production relative to the refineries and of the refineries to the marketing facilities. The company finds itself in a favorable situation in this respect.

DEATH OF J. A. TWICHELL

J. A. Twichell of Twichell & Myers, Pittsburgh, Pa., oil operators, died suddenly in New York on May 14. He was 73 years of age. Mrs. Twichell and one son, Ward, of New York, and a daughter, Mrs. Edwards, of Pittsburgh, survive him.

Mr. Twichell started in the oil business many years ago in the Pennsylvania fields. He later operated in Oklahoma. His residence was at 862 West Eighty-second Street in New York, where funeral services were held on Thursday, May 16.

Gray County Well Making 3,100 Bbls.

Archer County Test Surrounded by Dry Holes Estimated at 400 Bbls. Moore County Well Proves To Be Surprise When Opened

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., May 20.—The Texas Company's No. 1 Bowers in the SE cor. of the E half of Section 89, Block B-2, H.&G.N. Survey, Gray County, topped the pay at 2,902 feet last week, and came in for an initial production of about 10 bbls. an hour. This week it was drilled deeper, gas was encountered and production jumped to around 1,900 bbls. daily. Later the flow increased to 3,100 bbls. This is a good well for Gray County and helped boost production for that county for the week.

The same company brought in No. 1 Faulkner for a 940-bbl. well for the first 24 hours, but production in this test dropped to 65 bbls. later in the week. Pay was topped at 2,810 feet, and was completed at 2,812 feet, making another good well for the county.

The United Producers and Guy Brown brought in a rather interesting well in their No. 1 W. H. Taylor in the SW cor. of the N half of Section 17, Block 11, A.T.N.C.L. Survey, in Archer County. This test was surrounded by dry holes, but encountered sand at 1,482 feet and was shut down at 1,493 feet where it started producing. It is estimated good for 400 bbls. daily. It was situated higher on structure than the abandoned holes nearby, and due to being such a good producer was rather phenomenal. It is located 1¼ miles north of the old Texhoma-Gose Field. Nineteen locations were made in this county during the week, bringing the area into an interesting light, after having been rather quiet for awhile.

Gain in Panhandle

Production decreased in the Wichita Falls district 1,807 bbls. this week, due to many of the old producers taking a slump, with few new ones to boost the ante and prevent the decrease, although the next production report will undoubtedly show a significant gain due to good wells being brought in during the week. The Panhandle daily average made a big gain, 3,805 bbls., when several good wells came in in time to register on the week's production report, Gray County again assuming the lead with new wells in the Marland-Finely area.

After being shut down for about two years the Morton No. 1 Reeder in the NE cor., Section 191, Block 3, Moore County, surprised many when it was opened for three hours on a test. It flowed 18 bbls. of 38 gravity oil, and the flow was reported to be stronger the latter part of flowing than the first. Due to the fact that the hole was no doubt well paraffined after setting that long, this is rather a remarkable well.

The Eastern Carbon Black Co. has started operation of two of its units at the Rock Creek plant, southwest of Borger, burning about 20,000,000 feet of residue gas at the present time. When the plant is finished it will handle about twice this amount of gas. It is now working ahead of schedule and the other units are expected to be in full operation by July 1.

Callahan County Tests

Two tests in Callahan County brought in 2,500,000 feet of gas in a wildcat area in the north central part of the county. Drew Beams in his Nos. 1 and 2 Snyder encountered the Cook sand around 1,106 feet. Both wells are to be saved, and they are now standing at 1,120 feet averaging about 2,500,000 feet daily.

These wells are 6 miles north of Baird and are the first tests in the north central and northwest parts of the county that have found real commercial quantities of either gas or oil. Beams is now moving in material for his third test in this area, on the Snyder ranch. The above wells are located in Section 140, B.B.B.&C. Survey.

The Ranger sand seems to have been extended during the first part of the week when the Ashe Syndicate topped a heavy gas sand at 3,943-43½ feet, in its No. 1 J. B. Harte and others in the SE Section 29, Block 3, T.&P. Survey, Palo Pinto County. The well was completed for a gasser, spraying considerable oil at 3,943½ feet and making 10,200,000 feet of gas. This well is in the extreme western part of the county where there are a few small oil producers, but it is quite a distance from any other producer, and no doubt will cause a flurry of activity in this area.

Palo Pinto County

Van Arynx and others' No. 1 Jordon was shot with 150 quarts from 4,320-60 feet and had an initial production of 600,000 feet of gas.

Stephens County

Lone Star Gas Co.'s No. 1 Henry had an initial production of 9,600,000 feet of gas at 2,133 feet.

Shackelford County

B. Mack and others' No. 1 Isenhower was dry and abandoned at 1,006 feet. Earl & Dull's No. 7 Matthews had an initial production of 125 bbls. at 1,140-48 feet. Engle Brothers' No. 3 Matthews-B, had an initial production of 50 bbls. on pump at 1,140-52 feet. Hughes & Shulman's No. 1 Smith was dry and abandoned at 1,100 feet. Humble Oil & Refining Co.'s No. 1 Newell was drilled to a total depth of 1,365 feet and had an initial production of 12 bbls. on pump at 1,335-40 feet. Owens and others' No. 1 Alexander was dry and abandoned at 2,030 feet. Roeser & Pendleton's No. 1-382 Cook was dry and abandoned at 782 feet. Their No. 1-B Titus had an initial production of 60 bbls. at 595-609 feet. Tannehill and others' No. 3 Hill had an initial production of 12 bbls. at 699-704 feet.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week Ending May 18

CARSON COUNTY

Company, well, farm, name, section and block—	Remarks—
Champlin Ref. Co.'s No. 3 McConnell, 330 ft. S and E of NW W½ NW, Sec. 67, Blk. 4, I.&G.N.R.R. Sur.	Drlg. 1,760 ft.
Empire G. & F. Co.'s No. 1 Armstrong, 330 ft. from S line and 330 ft. from E line of NW SE, Sec. 31, T.T.R.R. Sur.	Drlg. 3,085 ft.
Empire G. & F. Co.'s No. 15 Burnett, C NW, Sec. 4, Blk. 5, I.&G.N.R.R. Sur.	Run. 8-in. csg. 2,590 ft.
Empire G. & F. Co.'s No. 16 Burnett, C NW cor. Sec. 104, Blk. 5, I.&G.N.R.R. Sur.	Drlg. 950 ft.
Gulf Prod. Co.'s No. 1, 330 ft. S and W NE cor. NW, Sec. 111, Blk. 4, I.&G.N.R.R. Sur.	Drlg. 2,440 ft.
Empire G. & F. Co.'s No. 5 M. P. Co.'s "A," 330 ft. S and E of NW cor. SE SW, Sec. 91, Blk. 4, I.&G.N. Sur.	Drlg. 850 ft.
Gulf Prod. Co.'s No. 6 Noel, 330 ft. S and 1,320 ft. E of NW cor. SW, Sec. 198, Blk. 3, I.&G.N. Sur.	Oil 3,170-75 ft; 58,000,000 ft. gas; T.D. 3,248 ft; swbd. 120 bbls. in 11 hrs.
Hubbliefield et als' No. 1 Garner, 330 ft. from S and E lines SE, Sec. 104, Blk. 4	Location.
Marland Prod. Co.'s No. 1 Burnett-L, 440 ft. S and 1,320 ft. NW NE cor. Sec. 79, Blk. 4, I.&G.N. Sur.	Fish. 2,763 ft.
May Pet. Co's No. 7 fee, 990 ft. from W line, 890 ft. from S line SE, Sec. 91, Blk. 4, I.&G.N. Sur.	Location.
McConnell O. & G. Co.'s No. 1 McConnell, 330 ft. from N line, 330 ft. from E line W½ NE, Sec. 65, Blk. 4, I.&G.N.R.R. Sur.	Rigging up.
McElroy Oil Co.'s No. 1 Lewis, 330 ft. S and E of NW cor. SW NE, Sec. 115, Blk. 4, I.&G.N.R.R. Sur.	S.D. 3,045 ft; show oil 3,040-45 ft.
Midwest Explts. Co.'s No. 1 Cooper, 330 ft. each way from SE cor. W½ NW, Sec. 5, Blk. 9, H.&G.N. Sur.	Spudding.
Morris et als' No. 1 Barnard, NW cor. SW SE, Sec. 44.	2,000,000 ft. gas 2,752-62 ft; fish. 2,800 ft.
Ryan Oil Co.'s No. 3 Black, 990 ft. from S line, 330 ft. from E line NE, Sec. 111, Blk. 4, I.&G.N.R.R. Sur.	Rig.
Spartan Oil Co.'s No. 1 S. Bednors, NW cor. E½ NW, Sec. 202, Blk. 3, I.&G.N. Sur.	T.D. 3,393 ft; P.B. 3,281 ft; shot 30 qts. 3,274-81 ft; no results; C.O.
Skelly Oil Co.'s No. 13 Schafer, 330 ft. N and E of SW cor. Sec. 88, Blk. 4, I.&G.N. Sur.	Drlg. 2,100 ft.
Skelly Oil Co.'s No. 14 Schafer, 330 ft. S and W of NE cor. Sec. 68, Blk. 4, I.&G.N.R.R. Sur.	Drlg. 1,400 ft.
The Texas Corp.'s No. 1 Quinn, 330 ft. from S line and 330 ft. from W line SE, Sec. 7, Blk. 9, I.&G.N. R.R. Sur.	Drlg. 2,575 ft.
Travis et als' No. 1 D. A. Harrel, C NE NE, Sec. 162, Blk. 7, I.&G.N. Sur.	Drlg. 3,440 ft.
Ware et als' No. 1 Ware, 990 ft. S and 400 ft. E NW cor. Sec. 18, Blk. 3, A.B.&M. Sur.	Fish. 4,625 ft.

CASTRO COUNTY

Colorado O. & R. Co.'s No. 1 M. Slemmons, SW cor. Sec. 73, Blk. M-17, B.S.&F. Sur.	Rig blown down.
Mystery Oil Co.'s No. 1 J. I. Crum, SE cor. NE, Sec. 333, Blk. M-6, S.K.&K. Sur.	S.D. 510 ft. for csg.

CHILDRESS COUNTY

C. L. Sloane et als' No. 1 B. P. Smith, Sur. 49, F. P. Knott lands	S.D. 4,340 ft.

COCHRAN COUNTY

Marland Prod. Co.'s No. 1 Slaughter-A, 330 ft. from W and 430 ft. from S lines, League 130, Carson County School land	Drlg. 1,775 ft.

COTTLE COUNTY

Explts. Co.'s No. 1 Richards	S.D. 3,535 ft. for csg.
Explts. Co.'s No. 4 Matador Land & Cattle Co., C, Sec. 46, J. H. Stephens Sur.	S.D. 3,227 ft.
Sun Oil Co.'s No. 1 T. B. Yarborough, 485 ft. S and 2,460 ft. E NW cor. Sec. 551, Blk. B, W.&N.W. Sur.	Drlg. 3,940 ft.

DONLEY COUNTY

Beaudoin et als' No. 1 Ball, 1,075 ft. from N line and 985 ft. from E line, Sec. 22, Blk. E, D.&P.R.R. Sur.	Rig.
Marine Oil Co.'s No. 1 Sawyer, C SW, Sec. 5, Blk. G, G.C.&S.F. Sur.	Drlg. 1,790 ft.

GRAY COUNTY

Anderson et als' No. 1 Heitholt, C NE SW, Sec. 152, Blk. 3, I.&G.N. Sur.	S.D. 2,590 ft.
Amagray Oil Co.'s No 2 Chapman, 330 ft. S and W NE cor. W½ SW, Sec. 9, Blk. 26, H.&G.N. Sur.	Drlg. 1,900 ft.
B. S. Arnold's No. 1 J. E. Mingale, C E 160 ac., Sec. 212, Blk. B-2, H.&G.N. Sur.	Drlg. 2,425 ft; show oil.
Barnsdall Oil Corp.'s No. 1 M. B. Davis, NW cor. W½, Sec. 9, Blk. 1, A.C.H.&B. Sur.	S.O. 2,820 ft; show gas 2,836 ft; S.O. 2,980 ft; T.D. 3,010 ft; plugged back to 2,883 ft. to shoot.
British American Oil Co.'s No. 1 Purviance, 330 ft. each way from NW E 160 ac., Sec. 61, Blk. B-2, H.&G.N.	Rigging up.
Camel Oil Co.'s No. 1 Harrah-B, 330 ft. each way from NW cor. NE, Sec 150, Blk. 3, I.&G.N. Sur.	Drlg. 3,140 ft; show oil and gas 3,125 ft.

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ESTIMATED DAILY AVERAGE PRODUCTION NORTH TEXAS

Week ending May 18

Panhandle District—	
Carson County	6,690
Hutchinson County	27,735
Gray County	25,920
Moore County	3,165
Potter County	10
Wheeler County	620
Total this week	63,140
Total last week	59,335
Increase	3,805
Wichita Falls District—	
Archer County	17,178
Baylor County	62
Clay County	588
Cooke County	6,296
Jack County	2,629
Haskell County	175
Montague County	6,887
Throckmorton County	689
Wilbarger County	26,228
Young County	6,996
Wichita County	26,984
Total this week	94,713
Total last week	96,520
Decrease	1,807
Ranger District—	
Brown County	7,942
Callahan County	3,764
Coleman County	3,817
Comanche County	1,210
Palo Pinto County	365
Ranger	5,428
Shackelford County	13,307
Stephens County	6,577
Total this week	42,410
Total last week	41,912
Increase	498
Grand total this week	200,263
Grand total last week	197,767
Increase	2,496

PANHANDLE COMPLETIONS

Gray County

Dye & Gillette's No. 1 Noel, was drilled to a total depth of 3,212 feet, topped the pay 3,186 feet, 3,204-07 feet, and had an initial production of 200 bbls. The Texas Company's No. 5 Bowers, located 330 feet north and 990 feet east of SW cor. E half, Section 89, Block B-2, H.&G.N.R. R. Survey, had an initial production of 1,076 bbls. in 24 hours at 2,902 feet. Wilcox-Pampa Oil Co.'s No. 5 Combs-Worley was shot with 460 quarts at 2,635-2,775 feet, swabbed 360 bbls. in 24 hours and was drilled to a total depth of 2,900 feet.

Hutchinson County

Alamoso Oil Co.'s No. 3 Sanford, topped the pay at 2,965-75 feet and 2,982-85 feet, was drilled to a total depth of 3,004 feet and had an initial production of 450 bbls. oil, 45 per cent water. Big Coach Oil Co.'s No. 1 Works had an initial production of 3,000,000 feet of gas at 1,550 feet. Mid-Pool Oil Co.'s No. 1 Johnson Brothers topped the pay at 2,340-2,530 feet, was drilled to a total

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May Prove New Shallow Field in Pecos

Phillips Petroleum Corp. Gets Big Showing of Oil in Test 9 Miles Northwest of Fort Stockton. New Wildcat for Ward County

By L. E. Bredberg
Staff Correspondent, West Texas Fields

FORT WORTH, Tex., May 20.—As this report was in the making, wires came in from West Texas announcing that the Phillips Petroleum Corp. had encountered a big showing of oil in its No. 1 Pryor in the NW cor. of Section 78, Block OW, T.&M. Survey, Pecos County. The pay was reported to have been struck at 1,345 feet, where the hole started filling with oil. It was drilled to 1,367 feet, where it was shut down for connections and storage. There was very little gas, but the oil was of a heavy green luster, the gravity testing 25 degrees at 60 degrees Fahrenheit. The hole filled 850 feet with oil. There is no water. It is being rigged up to pump.

This test is 9 miles northwest of Fort Stockton and will be the discovery of a new shallow field if it turn out to be a commercial producer, as it apparently will from all present indications and the way the hole is filling with oil. This is a lower gravity crude than found in the Pecos Valley shallow pool to the northeast, but the Phillips Petroleum Co. claims it is a sweet crude. The proximity to the Orient Railway to the southeast at Fort Stockton should make this production very salable and easy to pipe and load out on tank cars, if that is what is to be done. No trunk lines run through that part of the country, the nearest ones being those through the Yates Pool to the Coast, consequently hauling in tank cars will undoubtedly be the method of carrying out the production.

New Wildcat in Ward

Seven miles northwest of the Shipley Pool in Ward County, the Penn Oil Co. and Atlantic Oil Producing Co. are moving in material for a test which will be located on a geophysical structure, apparently a different structure from that of the Shipley. This is a new wildcat in that area and will be closely watched when it gets down to an interesting depth. It will be located in the N cor. of the S of Section 16, Block 34, H.&T.C. Survey.

The World Oil Co.'s No. 1 McDowell, which was discovered about a month ago, opening a new pool in Glasscock County, northwest of the farthest extension of the Settles Pool of Howard County, is now pumping only 8 hours daily, due to lack of sufficient storage to accommodate full production on a 24-hour day pumping schedule. It is averaging 150 bbls. on the eight-hour shift, and will no doubt make considerably better than this when the Humble Pipe Line Co. gets the line laid to the well from its pumping station south of the Roberts Pool in Howard County.

New Yates Gusher

The Mid-Kansas-Transcontinental Oil Co. brought in another great well during the week in No. 26-A Yates in the center of the Yates Pool, Pecos County, and although large wells no longer create excitement to the men working in that field, this well was not to be overlooked and merely written down as another "Yates well," for in a 15-minute period, while the crew was trying to pull out the tools, it flowed 2,007 bbls. or at the rate of 8,028 bbls. an hour. This is on the same lease as the discovery well, and in the center of the field, near several other large producers, consequently it could have been expected to be a good well, but no doubt very few thought it would amount to as great a producer as it looks.

The world's deepest producer, Texon's 1-B University, Reagan County, another phenomenal well of West Texas, where phenomenons in the oil world are found, topped another peak, in its great career, this week when it flowed 2,550 bbls. Almost every week it reaches another peak, so it is difficult to conjecture just what this yearling producer will amount to before it reaches a ripe old age. This well is an interesting feature among the oil men in West Texas, and every day many inquire into the past 24 hours' production gauge, fully expecting to hear of it reaching another peak in gas or oil, and most of the time they are rewarded with such a report.

New West Texas Contract

One of the highest priced contracts for crude in West Texas has been reported in a deal that has been pending between Mr. Shipley, the discoverer of the first Ward County Pool, Mr. Harrison of the J.H.L. Oil Co. and three men representing different refineries operating in West Texas. These men are B. L. Wooley of the Bluebonnet Refining Co., headquarters at Dallas, C. R. Armstrong and W. B. Hassett of the Wickett and San Angelo refining companies. This high price was said to have been based on Prairie's Mid-Continent listing, 80 cents to be paid for 36 gravity, differentiating 3 cents for each degree above 36 and 2 cents being deducted for each degree below 36. This is a new price for West Texas crude and precedes, by a few days, the increase in prices as raised by the Prairie this week. The Wickett Refining Co. is to get the present production through a 4-inch screw line from the field.

Pipe Line Runs

There was a decline of 12,000 bbls. in pipe line runs through main trunk lines from West Texas this week, with a decrease of about 3,000 bbls. in tank car shipments.

The Mid-Continent Royalty Owners Association is to hold a meeting at the Texas Hotel in Fort Worth May 24. The object is to discuss legislation affecting land and royalty owners, taxes and tariff on imported oils.

It is reported that the Independent Oil & Gas Co. has sold its pipe line, extending from the Winkler County Field to the T.&P. railroad at Pyote, to the Atlantic Pipe Line Co., and that the latter company has arranged to extend the line to the new oil area in Ward County, known as the Shipley Pool, where the Atlantic Oil Producing Co. has production. The line from the Winkler Field to Pyote is an 8-inch.

The Texas Pipe Line Co. has filled its line running from Jal in Lea County, New Mexico, to its pumping station in Ozona, and it will be but a short time until the remainder of the line to Port Arthur is completed and filled. This is a 10-inch line from Jal to Crane station, and a 12-inch from there to Port Arthur. It will be opened about the first of June, and will have a capacity of around 65,000 bbls. daily. This will be another large outlet for West Texas and New Mexico crude to the Gulf, and it will be able to draw from the two largest fields, the Yates Pool, Pecos County, and Winkler County fields, also running through Crane and Upton County pools, where The Texas Company has production.

PIPE LINE RUNS
May 1 to May 7

Runs Through Trunk Lines—Last Period	Bbls.
Atlantic P. L. Co., Port Arthur, Tex.	37,960
Gulf P. L. Co., to coast via Ranger, Tex.	24,681
Humble P. L. Co., via Comyn, Tex.	48,035
Humble P. L. Co., via Ingleside, Tex.	45,384
Illinois P. L. Co., to Del Rio, Tex.	37,000
Magnolia P. L. Co. to DeLeon, Tex.	26,890
Pasotex P. L. Co. to El Paso, Tex.	4,720
Shell P. L. Co., Healdton, Okla.	41,633
	266,303

Tank Car Shipments	
Thomas & Brann, Grant City, Tex.	224
Orient, McCamey, Tex.	145
The Texas Co., Crossett, Tex.	443
American Pet. Co., Pyote, Tex.	11,152
Skelly Oil Co., Pecos, Tex.	3,515
Sou.hern Crude P. L. Co., Wickett, Tex.	12,746
	28,225

Runs to West Texas Refineries	
Amarillo Prod. Co., Pyote, Tex.	2,118
Bluebonnett Ref. Co., Wickett, Tex.	1,032
Col-Tex Ref. Co., Colorado, Tex.	7,000
Cosden Ref. Co., Big Spring, Tex.	17,209
Great Western Ref. Co., Big Spring Tex.	3,309
Humble O. & R. Co., McCamey, Tex.	10,629
Midland Ref. Co., Midland, Tex.	2,585
Tonkawa Ref. Co., Pyote, Tex.	315
Valley Ref. Co., Pyote, Tex.	6,065
Big Spring Ref. Co., Big Spring, Tex.	2,675
	52,937

Summary

	Previous week	Last period
Pipe line runs through trunk lines	278,413	266,303
Tank car shipments	31,762	28,225
Runs to West Texas Ref.	53,646	52,937
Total daily distrubution	363,821	347,465
Total daily production	354,199	346,065
Daily average from storage	9,622	1,400

Estimated Daily Average Production
WEST TEXAS
Week ending May 18

County—	Wells	Prod.
Crane County	305	33,946
Crockett County	44	2,209
Ec or County	2	3
Fisher County	7	940
Glasscock County	25	639
Howard County	309	43,075
Jones County	83	4,171
Loving County	12	941
Mitchell County	145	2,647
Pecos County	308	91,564
Reagan County	341	18,508
Runnels County	3	52
Scurry County	5	31
Upton County	237	12,961
Ward County	4	1,566
Winkler County	588	139,591
Total this week	2,318	352,844
Total last week	2,316	352,617
Difference	2	227

WILDCAT OPERATIONS IN WEST TEXAS

Week Ending May 18

ANDREWS COUNTY

Company, farm and location—	Remarks—
Mid-Continent Oil & Gas Co.'s No. 1 Fisher, 1,320 ft. N and 200 ft. E of SW cor. Sec. 5, Blk. A-36	Drlg. 1,960 ft.

BORDEN COUNTY

Gibson & Johnson's No. 1 Higginbotham, middle of S line of Sec. 8, Blk. 31, Twp. 3n, T.&P.R.R. Sur.	Drlg. 3,420 ft.
Moncrief et al's No. 1 Munger, C of SW Sec. 14, Blk. 31.	Moving in material.
Teas & Wheeler's No. 1 Long, 1,320 ft. N and E of Sec. 27, Blk. 30, T.&P. Sur.	Location.

BREWSTER COUNTY

Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,598 ft. E of NW cor. Sec. 45, Blk. G-15, G.C.&S.F.	Drlg. 1,750 ft.
Cowden & Bowser's No. 1-A Jackson & Harmon, Sec. 1, Blk. 331, T.C.R.R. Sur.	Set 8-in. 1,530 ft.; shut down 2,000 ft.
Forrest Oil Co.'s No. 1 Skinner, C SW SE Sec. 100, Blk. 2, G.C.&S.F. Sur.	Rigging up.
J. M. Hickey's No. 1 Jackson & Harmon, NE cor. Sec. 182, Blk. 9, G.H.&S.A. Sur.	Shut down 2,000 ft.
Johnson & Weekley's No. 1 Jackson & Harmon, C Sec. 104, Blk. 10, G.H.&S.A. Sur.	Fishing 1,005 ft.
Van Mc?hail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 mi. S of Alpine	Shut down 1,740 ft.

COKE COUNTY

Cates & Dennis' No. 1 Mimms, 2,500 ft. S and 330 ft. E of NW cor. Sec. 47, Blk. 4, T.&P. Sur.	Show oil 1,580 ft.; underreaming at 1,655 ft.
Cates & Dennis' No. 2 Mimms, 2,340 ft. N and W SE cor. Sec. 8, Blk. W, T.&P. Sur.	Spudded and shut down.
Lipan Oil Co.'s No. 1 E. C. Rawlings, Sec. 390, Blk. 1-A, H.&T.C. Sur., elev. 2,750 ft.	Cleaning out 2,840 ft.
Mid-Kansas Oil Co.'s No. 1 W. E. Lackey, 330 ft. N and E of SW cor. Sec. 272, Blk. 1-A, H.&T.C.	Pay 3,755-56 ft.; 6⅝-in. casing set 3,451 ft.; fishing at 3,785 ft.
Ray E. McCamey et al's No. 1 McCutchen, 2,300 ft. S and 785 ft. W of NE cor. of T. J. Hines Sur. No. 4	Drlg. 1,250 ft.

CONCHO COUNTY

Duffy et al's No. 1 Gilliam, 1,520 ft. N and 1,120 ft. W of SE cor. Sec. 21, Blk. 10, H.&T.C.R.R.	Rigged up.
Fred Spratt's No. 1 Bryson, Sec. 30, 150 ft. from N and W cor.	Location.

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WEST TEXAS COMPLETIONS
Week Ending May 18, 1929

Brewster County

Bateman and others' No. 1 Nevill, located 2,000 feet from south and 1,000 feet from west of Section 64, Block 13, G.H. &S.A.R.R. Survey, was shot with 20 quarts at 1,899-1,935 feet and was dry and abandoned at 2,000 feet.

Crane County

Gulf Production Co.'s No. 62 McElroy, located 660 feet west of 57 in Section 201, Block F, C.C.S.D.&R.G.N.G.R.R. Survey, topped salt at 995 feet, topped lime at 2,710 feet, topped pay at 2,762 feet, was drilled to a total depth of 2,892 feet, was shot with 200 quarts at 2,762-2,882 feet and had an initial production of 420 bbls.

Crockett County

Moncrief and others' No. 1 Todd, located 660 feet from north and east of Section 35, Block WX, G.C.&S.F.R.R. Survey, was dry and abandoned at 1,400 feet after having a 15-quart shot at 1,368-78 feet.

Glasscock County

Merriweather's No. 2 McDowell, located 2,482 feet from south and 150 feet from east of Sec. 35, Block 34, Township 2s, was dry and abandoned at 3,875 feet.

Howard County

California Co.'s No. 5 Roberts, located 1,170 feet from north and 150 feet from east of Section 156, Block 29, W.&N.W. R.R. Survey, had an initial production of 75 bbls. at 1,840-1,882 feet. Green Oil & Refining Co.'s No. 7 Clay, located 1,315 feet from south and 250 feet from east of Section 127, Block 29, W.&N.W. R.R. Survey, location was abandoned. Group One-Marland's No. 8-A Settles, located 2,310 feet from south and east of Section 158, Block 29, location was abandoned. Their No. 7-A Settles, located 2,310 feet from north and east of Section 158, Block 29, location was abandoned. L. C. Harrison's No. 1 Dodge estate, located 330 feet from south and east of Section 9, Block 30, Township 1s, was shot with 190 quarts at 2,850-2,920 feet and was dry and abandoned at 3,257

(Continued on Page 182)

Every refiner who sells a barrel of heavy fuel oil at a ruinously low price, in effect sells 25 gallons of gasoline at that low price

Such a barrel of fuel oil can be made to produce 25 or more gallons of premium anti-knock gasoline if cracked in the Dubbs Cracking Process by the non-residuum method

And the by-product, coke, will almost pay for the cost of conversion

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

Asher Pool Gets Another Good Well

Offset to Discovery Well Starts at 120 Bbls. an Hour and Still Drilling. Removing Proration Has Little Effect

By W. A. Spinney
Staff Correspondent, Oklahoma Fields

The Prairie Oil & Gas Co. and Tom Slick Oil Co.'s No. 1 Lester, NE SE NE Section 19-6-4, Pottawatomie County, an offset to the discovery well in the Asher district, drilled by the Simms Oil Co., was producing 120 bbls. an hour from the Viola lime at 3,597-3,662 feet early Monday morning and still drilling deeper. The area surrounding the two producing wells is still the most active in the State in the matter of leasing and the changing of royalty interests and the starting of new wells.

Another area receiving a lot of attention from most of the major oil companies is the far western and southwestern part of Oklahoma, consisting of Roger Mills, Beckham, Greer, Harman and Jackson Counties. Some of these counties have been through a boom before, but as most of the earlier tests had only showings of oil, and the price of crude was on the down grade, the interest soon died out. At the present time more core drills and magnetometers are at work in the territory than ever before. Many important wells are getting under way, and by the late summer more will be apparent about the potential value of the oil and gas deposits in these counties.

Removing proration in Oklahoma has had little effect on the general production of the State, but Seminole is expected to increase in production somewhat more than it has thus far. Recent bad weather has affected the gauging and running of oil from leases, it is said. The State's production for the week ending Saturday, May 18, averaging 672,000 bbls., was little more than the average for the previous week.

Two Possibly Good Pools

There has been the disposition on the part of oil men to discount the Oklahoma City Field. The discovery well, more than five months old, is still making slightly under 3,000 bbls. a day and it has made a total of 628,209 bbls. up to May 18. There is no reason to assume that some of the wells now drilling will not find big production in the same deep pay. There are two wells below the 6,100-foot level and eight other wells about to reach the 6,000-foot depth.

Many of the most important fields found in Oklahoma have been opened by wells that later proved to be edge wells. For example, the Tonkawa Field discovery well was found to be on the edge as two offsets drilled were dry holes. At Burbank the discovery well was on the west end of the field some distance from the center of big production. It will be remembered that the discovery well at Seminole was on the extreme east edge of the largest producing field in Oklahoma. The well found its oil in the Hunton lime and had water in the Wilcox sand. The production only extended one location east of the original well. The Hewitt Pool was opened near the edge of the producing area. The first well in the Glenn Pool was a 50-bbl. producer.

As for Asher district, it is the most likely looking spot to increase the State's production quickly. While there are only two wells producing at this time, there are 35 others drilling. The third well is running 100 feet higher than the discovery well, and is an offset to it. All these wells have made excellent time in their race for the pay horizon and will soon be down to the Viola.

The oil is coming from the Viola lime in the completed wells and it is of interest to know that it only takes about 30 days to complete a well in this field. Some oil men refuse to take this field seriously on account of the oil coming from the Viola lime. They are waiting to see the development in the Simpson and Wilcox proven productive.

Very few wells have produced oil from the Viola lime, and it has been the history of those that have that they have declined rapidly and have soon gone to water. The Simms well has produced over 100,000 bbls. of oil in the past 35 days and is making more oil now than it did at the start.

Seminole Pipe Line Runs

The daily average pipe line runs from the Seminole area for the past week are as follows:

Company—	Bbls.
Barnsdall	7,958
Champlin	5,684
Continental	719
Consolidated	370
Cosden	17,879
Empire	8,989
Gulf	7,506
Independent	267
Magnolia	19,743
Oklahoma	31,145
Prairie	54,934
Producers & Refiners	742
Pure	2,488
Shaffer	3,885
Shell	8,348
Sinclair	29,867
Texas	17,685
Tidal	17,371
White Oak	3,860
Total	239,440
Tank cars	8,706
Grand total	248,146

The production of Logan County averaged 16,170 bbls. a day from 34 wells during the past week. The Shell Petroleum Corp.'s Cully lease is the most consistent producer in the field.

Core drills are increasing in use. In the older areas of the State different oil companies have found them to be serviceable in locating structural highs. The western part of Creek and the eastern part of Lincoln Counties are being tested by core drills. Several large oil companies have core drills running in the western part of the State and Woodward County in particular is being tested out.

New locations have been announced in 8-4 and 8-5, it is the belief that these townships will produce oil in large quantities and now that all restrictions have been removed from the area a lot of drilling will take place. Companies that have made locations the past week are Cal-Cul Oil Co., in the NW cor. NE NW, Section 9-8-5, and Keister-Manning, in the NE cor. SW, Section 9-8-4.

Greater Seminole Gauges

The gauges from the greater Seminole area for the past week are as follows:

	Bbls.	Wells
Monday, May 13	363,053	1,916
Tuesday, May 14	371,501	1,916
Wednesday, May 15	372,214	1,917
Thursday, May 16	381,396	1,918
Friday, May 17	389,053	1,919
Saturday, May 18	384,236	1,921
Sunday, May 19	391,721	1,922
Monday, May 20	393,648	1,924

The day proration was lifted the gauges showed a total of 372,214 bbls. from the greater Seminole area and the second day later the gauge was 389,053 bbls., an increase of 17,000 bbls. of production with an increase of only two wells.

There are 155 active drilling wells in the greater Seminole area and of this amount 91 are below the 3,700-foot level.

Log of Deep Dry Hole

Cromwell-Franklin Oil Co. announced this week that it would abandon No. 1 Thompson, SW cor. SE SE, Section 15-12-3w, Oklahoma County, at a total depth of 7,180 feet. The well used rotary tools most of the time since it was started, July, 1927. It has been shut down for some time on account of the casing collapsing in the hole. Several showings of oil were encountered while drilling but none were sufficient to make a commercial well. A log of the well from 4,000 feet down follows:

	Feet
Gray shale	4,000
Gray limestone	4,218
Sand	4,226
Shale	4,238
Sand	4,245
Shale	4,295
Limestone	4,298
Shale	4,360
Sand	4,365
Shale	4,382
Shale	4,393
Sand	4,398
Shale	4,418
Sand	4,420
Shale	4,425
Sand	4,430
Shale	4,435
Sand	4,440
Shale	4,455
Sand	4,460
Shale	4,505
Limestone	4,518
Shale	4,521
Sand	4,534
Sandy shale	4,610
Sand (oil)	4,618
Sandy shale	4,685
Limestone	4,780
Sand	4,802
Limestone	4,825
Sand	4,835
Shale	5,055
Limestone	5,185
Sand	5,445
Limestone	6,380
Sand	6,440
Sylvan	6,550
Viola	6,648
Simpson	6,690
Wilcox	6,845
Total depth (abandoned)	7,180

In the Asher District

Several oil companies and some individuals have paid large bonuses for oil leases on a block of lots in the town of Asher, Pottawatomie County. It is reported that some of these oil leases have cost as high as $16,000 to $17,000 for one block and the purchaser agrees to drill a well immediately. At this time there are seven wells drilling on lots in the townsite of Asher and several more locations have been made.

Tom Slick Oil Co.'s No. 1 Dickerson, NW cor. SW NW, Section 20-6-4, Pottawatomie County, has the top of the Sylvan shale at 3,450 feet and is drilling at 3,500 feet. According to correlations with the discovery well on this formation the Tom Slick Oil Co. well is running 100 feet higher than the Simms Oil Co.'s well.

Magnolia Petroleum Corp. is drilling an interesting well in No. 1 Thompson, NW cor. NE, Section 18-7-6, Seminole County. The hole filled 600 feet with water from the Simpson lime and is being drilled in that formation at 5,040 feet.

The Empire Oil & Refining Co. has been blocking leases in Pittsburg and Latimer Counties for some time. In Townships 6-16, 6-17, 7-16 and 7-17 it has taken over 10,000 acres on a supposedly large gas structure. This block will be held in reserve for a future supply of gas and it is expected it will be some time before any development takes place in this area.

In the McCulloch Oil Co.'s No. 1 McGilbray, SW cor. NE, Section 4-8-8, Seminole County, a semiwildcat that at one time looked as if it might develop

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WILDCAT OPERATIONS IN OKLAHOMA

NORTHERN OKLAHOMA

ALFALFA COUNTY

Company, farm and location—	Remarks:
Smith Bros.' No. 1 Forbes, SE cor. NW NW Sec. 12-27-11w	Shut down 350 ft.
Washoma Oil Co.'s No. 1 Acre, SW cor. NE Sec. 14-24-11w	Rig.

BECKHAM COUNTY

F. Coozan's No. 2 Holmesburg, SE NW Sec. 35-9-25w	Rig.
C. & H. Petroleum Co.'s No. 1 Barnes, SW cor. NW NE Sec. 32-9-22w	Shut down 3,460 ft.
Producers Exploration Co.'s No. 1 Seidell, SE cor. SW SW Sec. 17-9-22w	Shut down 2,402 ft.
Trees Oil Co.'s No. 1 Rodgers, SW cor. SW Sec. 30-8-25w	Drlg. 2,137 ft.
Carson and others' No. 1 Danby, SW cor. SE NE Sec. 20-8-22w	Shut down 1,445 ft.
Pferffel and others' No. 1-A Carter, NE cor. NE Sec. 35-9-22w	Shut down 1,500 ft.

BLAINE COUNTY

Lowen and others' No. 1 Unknown, NW cor. SW NW Sec. 27-16-11w	Spudded and shut down; renewing leases.
Washoma Oil Co. and others' No. 1 Phillips, C NW SW Sec. 13-19-10w	Drlg. 1,040 ft.

CADDO COUNTY

J. B. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w	Shut down 150 ft.
W. J. Hartley's No. 1 Galbreath, SE cor. NW SE Sec. 29-5-12w	Shut down 3,394 ft.

CLEVELAND COUNTY

Daniels & LeWright's No. 1 Vandever, C SW Sec. 15-7-1w	Shut down 3,130 ft.
Phillips Pet. and T. B. Slick's No. 1 Hentleman, NE cor. NE Sec. 8-10-2w	Moving in rotary tools 5,585 ft.

COAL COUNTY

Indian Territory Illuminating Oil Co.'s No. 1 Harris, SE NE Sec. 10-1-11e	Shut down 1,975 ft.
W. E. McGraw's No. 1 King, C SW NE Sec. 11-1-8e	Rig.
Indian Territory Illuminating Oil Co.'s No. 1 Cook, SW cor. NW Sec. 10-1-11	Drlg. 7,108 ft.
Robert Galbreath and others' No. 1 Jones, SW cor. SE Sec. 24-1-9	Fishing 3,350 ft.
J. S. Cosden's No. 1 Richardson, NW cor. NE NE Sec. 6-2-8	Drlg. 1,855 ft.
McGinley & Sigler's No. 1 Willsey, NW cor. SE SE Sec. 7-2-8	Location.
E. W. Whitney's No. 1 Brown, C SE NE Sec. 10-2-8	Shut down 202 ft.

COMANCHE COUNTY

Green and others' No. 1 Wilson, C NE SW Sec. 14-1-12w	Shut down 4,055 ft.

CUSTER COUNTY

W. E. Witt's No. 1 Wellman, C SE Sec. 1-14-14w	Rig and tools.

GARFIELD COUNTY

E. L. Love and others' No. 1 White, SE cor. NW Sec. 9-24-6w	Sand 4,770-4,800 ft.; hole full water; set. 6-in. casing.

GRADY COUNTY

J. V. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w	Spudded and shut down.
J. M. Henry and others' No. 1 Abraham, SE cor. NW Sec. 4-5-8w	Rig.

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TRANSIT

17 x 24 GAS ENGINE COMPRESSOR

solid as a Rock

Good Oil Showing in Trego County

Test Slops Over With 35 Gravity Crude in Northwestern Kansas. Sedgwick Has Produced 2,000,000 Bbls.

By W. A. Spinney
Staff Correspondent, Kansas Fields

Trego County, in the northwestern part of Kansas, is the latest to show oil production and is the most northwesterly Kansas county to develop oil. The Central Commercial Oil Co.'s No. 1 King, NE cor. SW NE, Section 20-13-21w, near the town of Riga, just over the western line of Ellis County, found a pay formation at 3,960-72 feet, which may be the Gorham sand. The hole filled 500 feet with oil in one hour and later was reported to have slopped over. The 5-inch casing will be run to the top of the pay and a production test made. The location of this test is on a block of 9,500 acres leased by L. J. Zoller, vice president of the company and V. H. Hughes, Tulsa consulting geologist early in 1928. The Shaffer Oil & Refining Co., Twin State Oil Co. and Transcontinental Oil Co. have acreage close to the well. The oil is said to be 35 gravity.

Sedgwick's Production to Date

The production of Sedgwick County on May 15 was 32,545 bbls. the largest day's production up to date. The first well was completed in August, 1928, and since that time the county has produced up to May 15 over 2,000,000 bbls. of oil. Most of the oil in the county is coming from the Valley Center Pool, northwest of Wichita. This pool is yielding around 18,000 bbls. daily of high gravity crude oil from 25 producing wells.

Ted Washabaugh's No. 1 Voshnall, NE cor., Section 9-21-3w, McPherson County, is having more water trouble. The first was caused by the casing collapsing after the outer casing had been pulled out, letting the water in on the pay horizon. The second dose of water came from the flood waters of Turkey Creek pouring in upon the rig and halting all operations, reaching a height of 4 feet on the derrick. Washabaugh is still trying to fish out the casing so another string of pipe can be run to shut off the water. Two other tests in the area that are getting to interesting depths are the Helmerich & Payne's No. 1 Rosen, NE cor. SE SW, Section 25-21-2w, drilling at 2,100 feet and Merriman-Reeves & Shiddell's No. 1 Bentson, Section 32-18-2, drilling at 2,825 feet. Both are in McPherson County.

For the first time since the completion of wells in the Oxford Townsite, the production has dropped below the 5,000 bbl. mark. The past week the average daily yield was 4,920 bbls.

Jolly & Ogg's test in Harvey County is about due to reach the pay horizon. It is No. 1 Randall, NE cor., Section 11-24-1w, near Newton. It has the top of the Simpson at 3,445 feet. The same company's No. 1 Hupp, SE NE, Section 22-23-1w, a few miles south of the Randall well, is drilling at 2,500 feet.

Important Test Abandoned

Lario Oil Co. and others' No. 1 Tjaden, NE SE, Section 22-29-2w, Sedgwick County, near Clearwater, will be abandoned. The hole is full of water from the Wilcox sand at 3,970-75 feet. It ran favorably on structure until the Mississippi lime was found. It was unusually thick for this area and ran from 3,570-3,905 feet. This wildcat was holding a lot of attention owing to its location in the southern part of the county.

After drilling several dry holes during the past two years in search of a pool near Burden in Cowley County, Lewis Production Co. has a well estimated good for 200 bbls. in the Bartlesville sand at 2,900-50 feet in its No. 1 Sitton, SE cor. NW NE, Section 30-31-6e. The well will be shot and then given a production test.

Laying 22-Mile Gas Line

McPherson Oil & Gas Development Co. is laying 22 miles of 8-inch pipe line from the Shell Petroleum Corp.'s No. 1 Haury, NE cor. SW SE Section 11-23-2w, Harvey County, which is making 18,000,000 feet of gas, to Hutchinson to connect with the Empire interests there. The laying of this gas line indicates that a gas field will be developed in the area.

The Kansokla Oil & Gas Co. has opened a gas field west of St. Paul, in Crawford County. There are eight or nine operators at present developing the shallow fields around here. It is expected that the field will become one of the largest shallow producing areas in the State.

It is reported that Wilcox Oil & Gas Co. has acquired a large block of leases in northwestern Stafford County, long considered potential oil country. A test will be started in the near future on this block, which consists of 25,000 acres in Township 24-15w. The test will be located 16 miles northwest of the recently discovered gas well of the British American Oil Co.

Opening the 3,000 acres of land in Ellis County owned by the Kansas State Teachers College at Hays for oil and gas leases will give other oil companies a chance to get into the play in this area, that has heretofore been almost exclusively held by the Phillips Petroleum Co. Most of the acreage lies south of Hays. President W. A. Lewis of the college will soon announce a date for the opening of bids on the college property.

Lygrisse Pool Is Active

The area surrounding the Shell Petroleum Corp.'s No. 1 Lygrisse, SE cor. NE Section 15-26-2e, Sedgwick County, gives evidence of becoming the most active of any in the State. The well is producing around 2,000 bbls. a day. The same company has made its fourth location in the area and is starting No. 1 Bog, NW cor. NE SW Section 14-26-2e, Sedgwick County. Same company has No. 1 Fisher drilling at 2,850 feet.

The Gypsy Oil Co. in the Lygrisse Pool has its No. 1 Hamant to the east of the discovery well in Section 14-26-2e, drilling at 2,950 feet and will be drilling in the pay next week.

Tidal Oil Co. has staked a location for No. 1 Duncan, SW cor. SE Section 31-25-2e, Sedgwick County, a north offset to the Patton & Wentz well in Section 6-26-2e, which is pumping 350 bbls. daily. The Tidal expects to get production in the Leon horizon, around 3,050 feet.

Going Deeper in Edwards

British-American Oil Co. and M. M. Valerius' No. 1 McCarty, NE cor. NW Section 31-25-17w, Edwards County, is drilling deeper after finding a good showing of oil and 6,000,000 feet of gas at 4,545-56 feet. The well is drilling at 4,575 feet. The owners have decided to go to the deeper horizons in an effort to open up a new producing level. The well will be plugged back to the above formation if deeper drilling does not disclose oil and gas in paying quantities.

After many months of uncertainty and untiring efforts to straighten out titles, drilling will be resumed on the No. 1 Buckles test, NW SE Section 3-28-1w, Sedgwick County. Ruppert McGlashan originally started the well, but it was abandoned at 150 feet and has been shut down since. Kellar & Lewis of Wichita are moving in standard tools to deepen to the pay horizon. The location is 3 miles from the Friends' University, and adjoins blocks of acreage owned by the Shell Petroleum Corp. and Marland Production Co., lying to the south and west, which as yet are undrilled.

An interesting development for the Leon district, Butler County, was announced this week by the Magnolia Petroleum Co. It will be a test on the Blakeman acreage in the northwest of the S half SE Section 4-28-6e. White Eagle Oil & Refining Co. and H. H. Patton, having offsetting acreage, will join in the test. It will be a half mile west of the Magnolia Petroleum Co.'s test in the same section, which had a 5-bbl. showing in the Leon horizon, but was abandoned.

Phillips Petroleum Co., with two wildcat oil wells on its block in Ellis County, has an exclusive play on this structure. The third prospect, 14 miles northeast of Hays, their No. 1 Heider, Section 8-12-17w, Ellis County, does not look so favorable. It is drilling ahead at 3,650 feet with neither oil nor water showing and is about 100 feet deeper than the producing horizon in the two wells to the east. These two producers are still shut in awaiting pipe line connections.

In northern Marion County, the White Eagle Oil & Refining Co. and others' No. 1 Kline, NE cor. NW, Section 28-18-3e, east of Tampa, has been shut down on account of high water. It is now drilling ahead at 2,725 feet. The owners are expecting to drill the Viola lime in a few days.

Activity in Older District

Southeastern Elk and parts of Cowley and Chautauqua Counties are getting active again. In the Grenola area two oil companies have staked four new locations and another has taken a big block of leases and is starting two tests at once. Elk Petroleum Co. has four new locations for wells in Section 9-30-9, Elk County, to drill in proven territory. Mann and others have also four locations to drill up on the inside of their lease in Sections 12 and 14-31-9, west of Grenola. Union Gas Co. has taken a block of 3,000 acres to the northeast of Grenola and is preparing to drill two tests immediately.

Several other companies in the district that have wells drilling include Croft & Hunt's No. 1 Dore, SE cor., Section 18-30-9, Elk County; Marland Production Co.'s No. 1 Haitt, NE Section 8-31-8, Cowley County; Syndicate Oil & Gas Co.'s No. 1 Westerfield, SW Section 1-32-8, Chautauqua County; Murphy & Minnehoma Oil Co.'s No. 2 Ferguson, SW NW, Section 4-23-8, Cowley County, and Mann and others' No. 1 Dory, Section 6-31-9, Elk County.

Production Cut Off

North of the extension to the state land pool, which is directly north of the townsite of Winfield, production has been seemingly cut off by a dry hole, the Foster Petroleum Co.'s No. 1 Mitschler, SE NE SE, Section 9-32-4, Cowley County. The well is 3,350 feet deep and nothing is showing. It is 75 feet below the pay horizon found in the offset wells. There is considerable drilling under way to the south and west of the above location.

The Wellington area will have another test on the south, the Houston Oil Co.'s No. 1 Mercer, C NW, Section 36-32-1w, Sumner County. This well will be 1¼ miles north of the Tidal Oil Co.'s No. 1 Ramsey, abandoned at 3,784 feet as a dry hole. Houston Oil Co.'s test will be in the center of a 2,000-acre block assembled a short time ago.

Butler County

Barnsdall Oil Co. made location for No. 1 Henrie, NE cor. NW, Section 21-26-3. Empire Oil & Refining Co. is erecting the rig for No. 16 Huston, SE cor. NW SW, Section 19-26-5. The rig is under construction for No. 9 Cranston, SW cor. NW SE, Section 22-27-5. No. 7-B Hutchinson, SE cor. NW NE, Section 27-27-5, is a rig going up. No. 3-A Hutchinson is a rig building, SE cor. NW NE, Section 34-27-5. Branson and others' rig is up for No. 2 Ferris, SW cor. SE NE, Section 5-27-6. Magnolia Petroleum Co. made location for No. 2 Riggs, NW cor. SW SE, Section 4-28-6.

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WILDCAT OPERATIONS IN KANSAS

Company, farm and location—	Remarks:
BARBER COUNTY	
Barbara Oil Co.'s No. 1 Angel, NW cor. NE Sec. 14-33-13w	Rig.
Robertson et al's No. 1 Powell, SE cor. SE Sec. 11-32-10w	Rig on ground.
Allison & Fitzwilliams' No. 1 Morrisse, C NW SE SE Sec. 9-30-12w	Drlg. 2,600 ft.
Rolland et al's No. 1 Pickens, NE cor. NW NE Sec. 27-30-14w	Drlg. 4,686 ft.
BARTON COUNTY	
Gobel & Bending's No. 1 Bartlett, SW cor. SW Sec. 28-17-15w	Drlg. 600 ft.
Everett & Wiley's No. 1 Ward, NW cor. SW Sec. 12-20-13w	Shut down 3,948 ft.
Phillips and Shell's No. 1 McClellan, SE cor. SW Sec. 23-26-6e	Drlg. 3,100 ft.; chat 2,778-90 ft.; dry.
BUTLER COUNTY	
White Eagle's No. 1 Bachelder, SW cor. Sec. 17-25-3e	Rig on ground.
Lilly & Schreck's No. 1 Newton, NE cor. NW NW Sec. 17-25-7	Rig.
Crawford et al's No. 1 Thompson, NW cor. SW Sec. 2-24-3e	Drlg. 200 ft.
Aladdin Petroleum Co.'s No. 1 Bronsenger, NE cor. NE SW Sec. 24-27-3	Rigging up.
Shell Petroleum Corp.'s No. 1 Thiesstin, C SE SW SE, Sec. 10-24-3	Drlg. 2,570 ft.
Smith & Ash's No. 1 Donnelly, NE cor. NE Sec. 8-24-6	Shut down 2,215 ft.
CHASE COUNTY	
Marland Prod. Co.'s No. 1 fee, SW NE Sec. 8-21-8e	Drlg. 1,750 ft.
COWLEY COUNTY	
J. B. Markley's No. 1 Tatum, SE cor. SW Sec. 11-31-6	Shut down 520 ft.
DICKINSON COUNTY	
Prairie Oil & Gas Co.'s No. 1 Morgan, NW cor. Sec. 26-16-3e	Rig.
Milmac's No. 1 Buhler, SW NE Sec. 28-16-4e	Spudding.
ELLIS COUNTY	
T. C. Johnson's No. 1 Robbins, SW NW Sec. 15-14-16w	Drlg. 1,600 ft.
John Brown's No. 1 Gestner, SE cor. SW NE Sec. 13-13-18w	Drlg. 1,400 ft.
Rush Oil Co.'s No. 1 Gatewood, NW cor. NW Sec. 4-15-20w	Shut down 1,600 ft.
Finney & Weiner's No. 1 Freeman, SE cor. SW Sec. 24-15-20w	Spudded and shut down.
Phillips Pet. Co.'s No. 1 Johnson, SW cor. NE Sec. 9-13-19w	Drlg. 3,305 ft.
Phillips Pet. Co.'s No. 1 Dechant, NE SE Sec. 12-13-16w	Sand 3,18-22 ft; 50 bbls.
Phillips Pet. Co.'s No. 1 Schneider, NW cor. Sec. 20-12-17w	Drlg. 3,429-39 ft.; 108 bbls. in 8 hrs.; shut down.

(Continued on Page 139)

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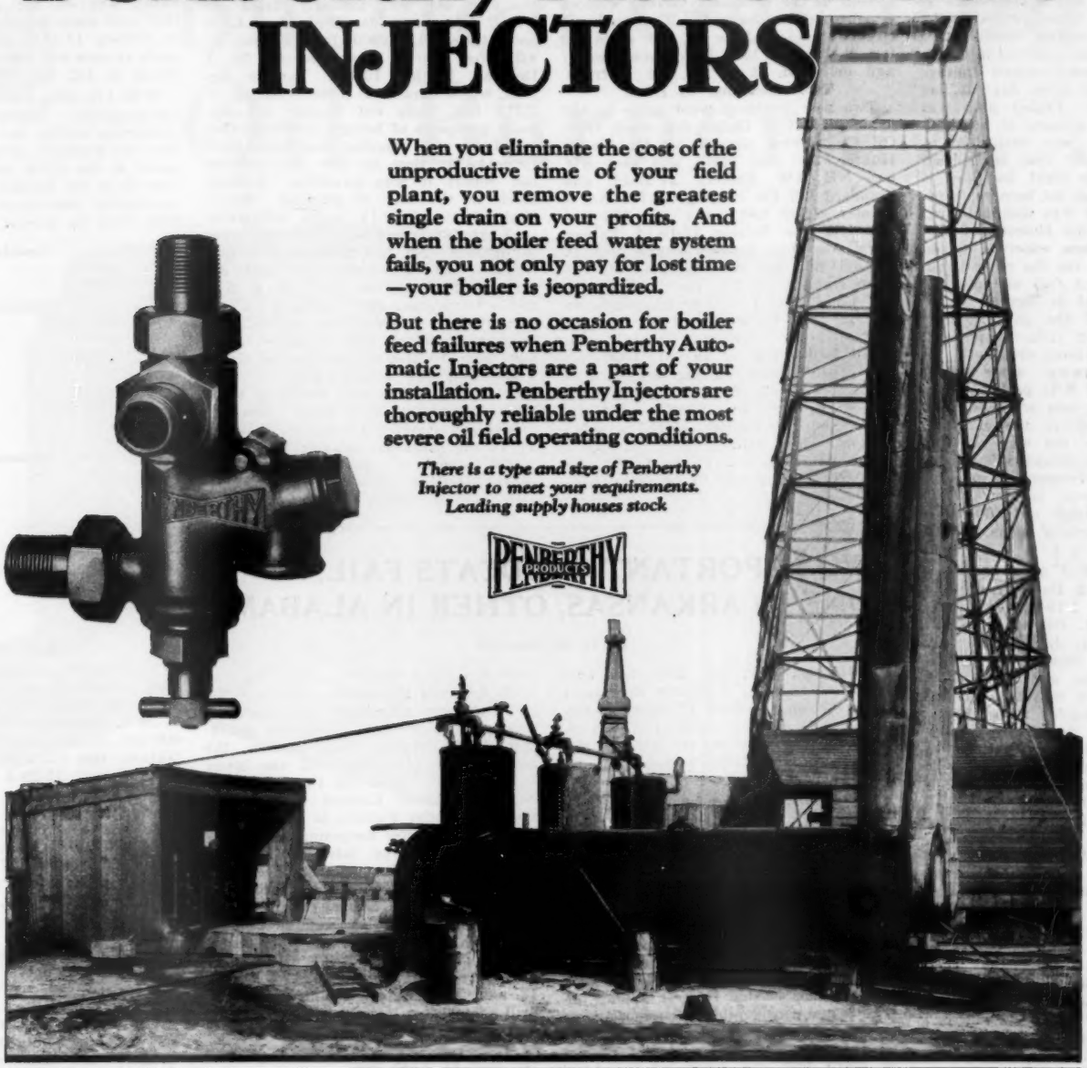

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Dixie's Pine Island Test Disappoints

Small Gas Show Not Up to Expectations, Although Later Developments May Be More Encouraging. Humble-Standard Deal Reported

By D. H. Bancroft
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., May 20.—As it stands at present, Dixie Oil Co.'s No. 92 Dillon in Section 13-21-15, Pine Island district of Caddo Parish, the foremost test in the division, is not looking quite so well. This deep test, 6,124 feet total depth, is more or less a key well. If it turns out well the fraternity anticipates quite a revival in North Louisiana; if it doesn't—that's another story. For the last three days it has been bailing casing. Friday plug was drilled and Friday evening it partially cleaned itself and was estimated at 1,000,000 feet of gas. One more head was made during the night, but how it behaved thereafter has not been reported. The small gas show was disappointing. Basing opinion on the blowout of last December, it had been expected to do a great deal better. On the other hand, it has been standing full of mud for about 3 months and is figured to be only in the top of the pay, possibly 5 or 6 feet. If it fails to perform according to expectations occasioned by the December showing after being headed a few times, it is probable that a few more feet of hole will be made. If this fails to improve the situation what will follow in the way of deep drilling in north Louisiana remains to be seen. Should it improve to any appreciable extent there is apt to be much drilling to 5,000 or 6,000 feet and below in the proven areas of this division.

After the Dixie well as a center of interest comes Lide & Davidson's No. 1 Glassell in Section 1-19-15, 2½ miles northwest of D.C.R. Oil Co.'s discovery well in the Dixie district of Caddo Parish. With the bottom in 21 feet of sandy shale, lime and sand, total depth 2,433 feet, the well was making a drill stem test Saturday morning. At this depth it was practically at the same level as the discovery well, which is last reported as making 45 bbls. daily on air. Root Refineries' No. 1 Liebman, Section 12-19-15, about the same distance northwest from the discovery, appears to be too deep, off structure slightly, having cored gummy shale with streaks of lime from 2,416-21 feet under 16 feet of shale, and no sand so far. Dixie Oil Co.'s No. 97 Dillon, Section 13-21-15, a shallow sand producer at 1,753 feet, did 15 bbls. initial as a pumper.

Report Humble Withdrawal

The Dixie and Lide tests lost some of their prominence during the week's discussion of reports that the Humble Oil & Refining Co. is pulling out of this division. The best information obtainable, from offices of both companies, is that the Humble is turning over to the Standard Oil Co. of Louisiana for a price not revealed all its production in this division It amounts to 4,000 bbls. daily from 200 wells, of which 564 bbls. is in Cotton Valley, 100 bbls. in Haynesville, 67 in Bellevue, 200 in El Dorado, 129 in Lisbon, 2,500 in Smackover and 650 in Nevada County.

Whether the Humble will retain its large holdings of wildcat acreage in this division or turn it over to the Standard as well has not been learned. Opinion seems to be that it will retain it and proceed with development as conditions within the industry and the Louisiana political situation make it seem advisable. Humble, as a Standard subsidiary, has been the wildcatting agency for the Standard of Louisiana ever since it came into this territory; that is, it has been the wildcatting member of the Standard representation here, and inasmuch as orders have been issued to proceed with a recently begun wildcat in Columbia County, it is figured that this means the Humble will retain its wildcat holdings and carry on exploration work. Whether it will continue after completion of the Columbia County wildcat remains to be learned. The trade is effective as of June 1, but since no formal transfers have been signed, sealed and delivered, it is not yet a trade.

Two Locations in Dixie

Two new locations were made in the Dixie district of Caddo this week, Ohio Oil Co. having derrick up for No. 2 Hunter, 330 feet north and east SW cor. NE NW Section 17-19-14, and Standard Oil Co. rigging up for No. 4 Hunter, 1,320 feet south and 330 feet east NW cor. Section 17-19-14. Palmer Corp. also has location for a test in Section 8-19-14, bringing the total to 11 operations in this district. Simplex Oil Co.'s No. 7 Youree-Randolph in Section 13-20-15, northeast of this district and in another "pimple" area, tested 50,000 feet of gas at 2,300 feet and is shut down waiting orders, total depth 2,326 feet. Eastern Carbon Co.'s No. 4 Bryson in Section 8-17-16, Greenwood gas district, staged a small blowout while drilling plug at 2,773 feet, and is trying to mud off the 5,000,000 feet of gas to set liner from 2,300 feet.

Palmer Corp.'s No. 1 Mixon in Section 22-21-10, Cotton Valley district of Webster Parish, created a little flurry when it started making a small quantity of oil, but not enough to make a well. It was completed a year ago as a small gas well in the deep stuff at 4,729 feet. Probability of its developing into a producer is at this time discounted. Magnolia Petroleum Co.'s No. 1 Ira Cox, an old well formerly listed as No. 2 Cox being deepened from 4,518 feet, tested 1,500,000 feet of gas at 4,579 feet and is going deeper. No. 1 Denman, Section 1-22-11, Sarepta district, which showed oil three weeks ago at 2,719 feet, does not appear to offer much prospects of being a producer. One expedient after another has been tried to make it flow or fill up and on last report it was swabbing without much in the way of promise. No. 1 Cook, Section 2-22-11, tested salt water at 3,184 feet, corrected depth and went on drilling. No. 5-A Robbins is a new location 660 feet north and west SE cor. SE SW Section 21-21-10, a deep test. Louisiana Oil Refining Corp. completed No. 5 Gray, Section 28-21-10, gauging 32,500,000 feet of gas at 1,525 feet from 10 feet of sand, total depth 4,664 feet, the second well in this district in the last two weeks to show large volume at such heavy pressure.

Richland Producing Co.'s No. 1 Hemler in the southeast quarter of Section 2-16-6 served to prove up a lot of vacant territory between the northern and southern bodies of the Richland Parish gas field as well as 1½ miles east of the nearest production. It gauged 49,000,000 feet of gas from 2,450 feet, total depth, and was matched by Carbon Gas Co.'s No. 1 McCoy in Section 8-16-6, which gauged 49,933,000 feet at 900 pounds, total depth 2,450 feet. Palmer Corp. abandoned location for No. 1 Wolf in the NW NE Section 34-17-6, about a mile from production either way on the north edge of the field and made location for No. 1 Miles in Section 11-17-6, on which it started work at once and has set 12-inch surface string at 142 feet.

With 115 wells averaging 73 bbls. daily Champagnolle improved somewhat in production during the week, though pipe line run averages show 8,215 bbls. compared to the 8,318 bbls. Daily average runs from the division as a whole were practically stationary. Daily average runs from the several pools were:

Louisiana

Caddo, light	3,320
Caddo, heavy	3,130
Homer	4,180
Haynesville	5,310
DeSoto-Red River	3,820
Elm Grove	590
Bellevue	620
Cotton Valley	2,710
Urania	5,960
Pleasant Hill	480
Sarepta-Cartersville	250
Total	35,370

Arkansas

El Dorado	4,690
Smackover, light	6,140
Smackover, heavy	48,610
Stephens	1,020
Nevada County	1,065
Lisbon	1,350
Champagnolle	8,215
Bradley	100
Total	71,190
Both states	106,560
Last week	106,580

Monroe District

Two small gassers and a dry hole were completed in the Monroe district. J. S. Herkness' No. 5 Bowles, Section 17-20-5, Morehouse Parish, made 5,000,000 feet, total depth 2,247 feet. Ouachita Natural Gas Co.'s No. 1 Sandidge Patton, Section 15-20-4, Ouachita Parish, was abandoned as a junked hole, total depth 1,700 feet, and Interstate Natural Gas Co.'s No. 2 Hunter & McCormick, Section 13-19-3, Ouachita, made 5,000,000 feet, total depth 2,177 feet. The Urania district of LaSalle Parish listed G. W. Zoder's No. 2 King, Section 13-10-1e, pumping 100 bbls. from 1,528 feet. Eureka Natural Gas Co. completed No. 1 Cox-Timmins, R. W. Bedford Survey of Harrison County, Texas, with 1,000,000 feet of gas, total depth 2,394 feet.

Completion of a small pumper in Root Refineries' No. 1 Wilson, Section 25-15-18, Mount Holly district of Ouachita County, was submerged by Magnolia Petroleum Co.'s No. 1 Wilson in the same section, which was abandoned as a dry hole. The Root well is an east offset and the Magnolia's is on the south of the discovery well. The former started pumping 40 bbls. 8 per cent water from 6 feet of broken sand, total depth 2,855 feet, and the latter had drilled to 3,104 feet after failing to find production anywhere near the 2,868 feet total depth of the discovery well, though it had cored sand showing oil from 2,859 to 2,872 feet.

The first completion in the proven area of the Stephens district for more than a year came to light when E. C. Laughlin put No. 1 Morgan, Section 22-15-19, on the beam for an initial of 12 bbls., total depth 2,253 feet, after it had been carried on the records as

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TWO IMPORTANT WILDCATS FAIL, ONE IN ARKANSAS, OTHER IN ALABAMA

By D. H. Bancroft

SHREVEPORT, La., May 20.—Two important wildcats went by the board this week and a third of equal importance made a salt water test but is still drilling. Louisiana Oil Refining Co. abandoned No. 1 Manly, Section 15-15-19, its deep test in the Stephens district of Ouachita County, Arkansas, as a dry hole at 4,502 feet and Greer and others abandoned No. 1 Long-Bell Lumber Co. in Section 28-10-4w, Choctaw County, Alabama, as a salt water hole at around 3,900 feet.

Lion Oil Refining Co. tested salt water with a small show of gas at 3,515-19 feet in No. 1 Misterfelt, Section 2-4n-1e, Rankin County, Mississippi, but has not abandoned the test, which last week aroused considerable interest among operators and considerable discussion among geologists as to the identity of formations encountered. The well is drilling at 3,575 feet and scheduled for 4,000 feet, but may go on to 4,500 feet.

The Louisiana well in Stephens could possibly have been made a producer in the regular Stephens horizon but it would have been a small pumper and, as it was scheduled for a deep test to begin with, completion at this depth was not considered. The Alabama well was the first completion following the agitation that developed last fall over prospects for production on the Hatchetigbee anticline in the southeastern corner of the state. During this agitation approximately 500,000 acres was leased by a half dozen or so of the major companies.

Southeast of Mount Holly

Beside the Stephens wildcat, three others in Arkansas were failures. Sundby and others' No. 1 Yocum in Section 29-16-17, Union County, was dry at 3,536 feet and Hawthorne Oil Co.'s No. 1 Smith was abandoned for the same reason at 3,520 feet. Both are southeast of the Mount Holly district, the former about 10 miles and the latter 4 or 5 miles. Ohio Oil Co. abandoned No. 2 Southern Lumber Co., Section 19-16-9, Bradley County, in the red beds at 3,510 feet, after deepening from 3,217 feet, where it was listed as dry and abandoned last January, the deepening being chiefly for geological information. It is reported the company will shortly begin work on another well on a block near Vick in the same county, and meanwhile it has taken 2,200 acres solid in the corner of Townships 10 and 11, Ranges 12 and 13, Calhoun County, and will drill a 3,000-foot test, probably in Section 31-10-12. The company's No. 1 Jerome in Section 13-15-4, Drew County, is drilling lava at 3,748 feet.

West of the Mount Holly district, Arkansas Drilling Co.'s No. 1 Crowley, Section 27-15-19, tested salt water at 1,632-38 feet but is drilling ahead at 1,700 feet. Cumberland Oil Co. did not abandon No. 1 Burton in Section 24-15-18, a mile or so northeast of the discovery well, as a salt water hole at 2,870-84 feet as reported last week, but went on down and is fishing for core barrel at 2,937 feet. W. M. Coats' No. 1 McDuffie, Section 32-19-17, Union County, on the state line 10 miles west of Junction City, tested salt water at 2,118 feet but went on and is reaming to bottom, total depth 2,185 feet.

Columbia County

Humble Oil & Refining Co. will be making hole shortly on No. 1 Spencer

(Continued on Page 156)

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Refugio Field Grows in Importance

Area Is Now Nearly 4 Miles Long and May Be 4 Miles Wide. Usher Carson Pool Developments Interesting

By B. D. Stevenson
Staff Correspondent, Southwest Texas

SAN ANTONIO, Tex., May 20.—Fire in the Joe Bruner Field that destroyed the derrick and rig of the Shell Petroleum Corp.'s No. 1 Clyant Smith was a spectacular affair but was put out after burning for a few days and did no damage to the field, and the most important feature in proven areas the past week in Southwest Texas is probably still the Refugio Field in Refugio County and the growing importance of that oil producing area and the chance that it may develop into one of the biggest oil producing areas in Texas is still increasing. The field has developed so gradually that few are giving it the importance it deserves both as to itself and as to its bearing on the rest of the Gulf Coast. The first wells at the south end of the field in the 3,700-foot sand carried considerable water. This cooled the interest of operators.

Until recently when the Houston Gulf Gas Co. drilled No. 7 Shelly, all the oil wells at 3,700 feet were, so far as anyone could see, edge wells which might account to some extent for the water. Now there is an area nearly 4 miles long and some things to indicate it may be as much as 4 miles wide that may develop production in the lower sands. All of the sands, and there were several, produced gas down to 3,300 feet which was the biggest gas sand of all and one well in it near No. 7 Skelly at one time produced as much as 60 bbls. of oil a day. The next producing sand below is the 3,700-foot sand, producing both gas and oil.

Field 4 Miles Long

Within the past week Benedum & Trees and William F. Morgan got a well flowing at rate of 400 bbls. on quarter-inch choke in No. 2-B Rooke, 1,000 feet south of the nearest gas well in that sand and 3,000 feet southwest of the nearest oil well in that sand. The field is now 4 miles long. There is oil on the north, east and south and one well, No. 7 Shelly, in about the middle, not completely cleaned out as this was written but flowing a lot of oil and with no doubt that it will make a good well, probably as big as any. Mission Drilling Co.'s No. 1 Fox on the east side, the shallowest in the field and flowing from 3,645 feet total depth, reported last week as flowing initially at the estimated rate of 750 bbls., was flowing last Friday through quarter-inch choke 240 bbls. of oil a day and no water and with pressure of 520 pounds. The choke was to be increased a little as an experiment to see what effect it had on the production.

The past week Mission Drilling Co.'s No. 1 Powers on the east side of the city of Refugio and 4 miles from the west side gas well, tested at 3,518 feet but got only a small amount of oil and some water and is deepening. Nothing has produced in the field at that depth though some wells have had showings. Everybody is waiting to see what it will get when it reaches the regular sand at 3,700 feet or a little less.

There are two other tests that deserve watching. Mission Drilling Co.'s No. 3 Rogers has the drill stem stuck at 4,650 feet but expects to get it out. It is below all producing sands in that field and failed to make anything in the deepest sand at 3,700 feet but the deeper the sand the larger area it covers in that field and with seven or eight sands down to 3,700 feet carrying gas or oil this Mission Drilling Co.'s No. 3 Rogers on the west and the same company's No. 1 Mitchell on the southeast, just south of the city of Refugio, at 4,150 feet and showing considerable gas with a tendency to bridge, may any day open up a still deeper pay sand.

Laredo District

Only two wells were completed in the Laredo district. Trapshooter Reilly's No. 3 Hinnant in Zapata County in the new oil pool northeast of the Jennings gas field, and G. C. Salley's No. 1 Puig in the Aviator Pool. The first was a 25-bbl. well in sand at 1,597-1,604 feet and the second a 10-bbl. well in sand at 1,610-17 feet and with total depth 1,653 feet.

In proven areas the Usher Carson oil pool on the edge of the Carolina-Texas gas pool is probably as interesting as anything in the Laredo district. George S. Marshall has made a location but not yet spudded in a quarter of a mile west and one location south of the Barnsley oil well producing in the 2,600-foot sand, the last well completed. Barnsley has not been able to get pipe line connection for his oil and the well is shut in after having filled several tanks. W. R. Shankle, 1,600 feet east and 600 feet south of the Barnsley well, failed to get anything at 2,600 feet and has been wrestling with a showing at around 3,000 feet. At 3,045 feet it showed a little oil and he is changing rig in hope of making a small well. Trapshooter Reilly is trying to pick up the 2,600-foot production a half mile south of the Barnsley well and is drilling at 2,500 feet in his No. 1 Benavides in the northeast corner of the northwest quarter of Survey 685. In another week he will know the news. Nothing has been drilled in the half mile between his test and the Barnsley well. The first thought was that the Usher Carson discovery oil well was a southeast edge proposition to the gas area which lies to the northwest of it and so no locations were made farther to the southeast. Now locations are being made to the southeast with the idea that the oil wells, if edge propositions, are on the northwest edge of the oil pool.

Albercas and Magnolia-Cole

The Albercas and Magnolia-Cole Pools have about reached a standstill and the production figures from the Laredo district will begin to drop a little unless some new pool is discovered or unless drilling is speeded up in some of the lately discovered pools. The Albercas Pool in the southeast corner of Webb County reached its limit when the Rycade Oil Corp. and Sun Oil Co. offsetting each other on a line fence deal reached the south end of their lease. A. W. Majors has a lease south of them but is not much disposed to drill till the price of oil goes up and George S. Marshall has a lease south of the Sun Oil Co. and has made a location but nothing more. The field must go south if anywhere.

Humble, in the Kohler Field, got a setback last week in the gas area when No. 22 at the southwest end proved dry at the regular sand depth and was carried to 2,535 feet without profit. Either the field is pretty narrow or it stops there. Up at the north end Humble drilled a south offset to No. 9 Kohler, a gas well, and got a dry hole at 1,756 feet, the regular sand depth. It may drill deeper. It helps to indicate that the field is narrow but does not prevent it going farther north. No one is interested in this proposition except the Humble Oil & Refining Co. with the Reiter-Foster holding a quarter interest.

Somerset Field

Frontier Oil Co. is starting to pull casing and abandon five wells on its Hopkins lease in the Somerset Field. There has been but very little active drilling in the field for a number of months except here and there with the exception of the northeast end where Schimmel Production Co. opened up an extension and has been getting good new production. Frontier Oil Co. plans to abandon about one-fifth of its wells in the older part of the field every year due to the production dropping down and the wells being unprofitable at the present price of crude oil. This is the first that any operator has started abandoning producing wells in that field which up to this time has produced something over 7,000,000 bbls. and at times was one of the most profitable shallow pools in America.

Production Increase

Production in Southwest Texas pools has nearly doubled within three months. April total production from the pools of Southwest Texas being 84,773 bbls. and January total production being 48,690 bbls. The steady increase is due very largely to the increased production of the Joe Bruner Field, the other pools showing not much fluctuation. Due to there being not much additional new drilling in the Albercas and Magnolia-Cole Pools in the Laredo district that territory has been standing without much change.

Production of Southwest Texas by pools for the past four months has been as follows with the total for all Southwest Texas:

	Jan.	Feb.	Mar.	Apr.
Mirando	12,698	10,447	11,884	11,356
Luling	12,840	14,737	12,233	12,625
Lytton Springs	1,067	1,036	992	978
Dale	581	481	474	476
Kingsville	376	289	237	288
Somerset	1,771	1,755	1,503	1,820
Callihan	53	45	82	109
Southton	145	162	132	146
Bruner	13,712	22,940	33,927	39,862
Yoast	1,137	2,237	2,096	1,588
Branyon	47	47	27	27
Brenham	150	150	150	150
Independence	633	875	2,955	3,631
Raccoon Bend	1,767	2,158	2,300	2,064
Refugio	857	1,464	1,426	8,717
Gonzales	157	119	86	90
Larremore	269	233	209	162
Minerva	720	721	715	683
Total	48,690	59,896	71,429	84,773

SERPENTINE POOL IN CALDWELL; DEVELOPMENT IN BEE COUNTY

By B. D. Stevenson

SAN ANTONIO, Tex., May 20.—Jim Harper will likely have a new Serpentine pool opened in Caldwell County by the time this is read. Serpentine pools probably exist in little pimples all over parts of Caldwell and adjoining counties. Cranfill & Reynolds and Sun Oil Co. drilled No. 1 Cardwell in the Lytton Springs townsite, about 2 miles northwest of the Lytton Springs Pool. It made a fair well but tests drilled on two sides of it were dry and this discouraged further drilling. Jim Harper and associates last week set casing in No. 1 Miller, three-quarters of a mile west and had 120 feet of pay in the Serpentine and it looks like a good well of probably around 100 bbls. of oil and no water. Total depth is 1,850 feet and top of the Serpentine was 1,730 feet. He was to drill in and test Monday. There are not so many dry holes around there but that a sizeable Serpentine pool may be brought in and developed.

Serpentine pools have not attracted so much attention as at first. The Lytton Springs Pool was a good sized pool and quite profitable, reaching a total of 329 wells and peak production of 17,000 bbls. a day. Dale, 5 miles southeast, has only about 35 wells. Lytton Springs townsite has only one well. The Yoast Pool, in Bastrop County, is about 5½ miles nearly due northeast of the Lytton Springs townsite and it consists of relatively few wells and reached only about 3,000 bbls. daily. However, if a wildcatter runs into a Serpentine plug it is profitable to stop and develop it and the profit is sufficient to replenish his bank account for the time being. Those wildcatting around in that part of the State are familiar by now with the Serpentine plug and, while they would rather have another kind of a field, are careful not to pass up the Serpentine. Two wildcat tests up in Bastrop County around the city of Bastrop have lately shown some evidence of Serpentine and there are possibilities of Serpentine plugs all over that territory.

Bee County Gasser

Mission Drilling Co.'s No. 2 Ray, in Bee County, built up a rock pressure of 1,100 pounds and has a volume of about 30,000,000 feet. Total depth is 2,890 feet. The old derrick on No. 1, the discovery well, has been removed and a big derrick and rig is being moved in and it will be deepened from 2,875 to 2,890 feet to see if it doesn't improve it and make as good a well as No. 2. This is a new field 30 miles from production on the west and southwest, 45 miles from the Refugio Field on the southeast, 75 miles from the Luling Field on the north and 125 miles from nearest production at Raccoon Bend on the northeast. It opens up an entirely new county and Mission Drilling Co. (George E. Smith), in which Moody-Seagraves interests have acquired an interest, owns 18,000 acres around this well.

The main importance of the field is that it makes things look better in that part of Southwest Texas for adjoining territory. About 25 miles due east, in Goliad County, Humble Oil & Refining Co. has started to drill formation tests to work out a structure 2 miles north of the city of Goliad, and 40 miles northeast Humble, in northern Victoria County, with 13 formation tests, in some of which it got shallow gas, has probably proven a structure. These, along with the

(Continued on Page 159)

COMPLETIONS

Bastrop County

Trinity Drillers' No. 3-A Yoast, A. Garcia Survey, completed at 1,476 feet; 100 bbls. on the pump.

Bexar County

F. H. Eckert's No. 4 Paul Dobrowolski, Section 52, Block 4, completed at 704 feet; pumping 5 to 6 bbls. daily.

Bee County

Mission Drilling Co.'s No. 2 Ray, completed at 2,890 feet, 30,000,000 feet of gas, 980 pounds rock pressure, with mud still in hole; steadily increasing.

Caldwell County

Humble Oil & Refining Co.'s No. 2 Addie Hinds, J. Hinds Survey, completed at 2,694 feet; swabbing 1,200 bbls.

Humble Oil & Refining Co.'s No. 2 Tom Tiller, James Hinds Survey, completed at 2,677 feet; small well, no gauge.

Humble Oil & Refining Co.'s No. 2 J. L. Northcutt, J. Hinds Survey, completed at 2,687 feet; swabbing 40 bbls. hourly.

Cranfill & Reynolds' No. 2 Hanson, J. Hinds Survey, completed at 2,675 feet; swabbing 175 bbls.

Humble Oil & Refining Co.'s No. C-1

(Continued on Page 168)

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THE
NATIONAL SUPPLY
COMPANIES

Two New Deep Wells at Barbers Hill

Important Test in Orange County Shows Water. Heavy Rains on Gulf Coast Slow Down Operations in Field

By Neil Williams
Houston Bureau, The Oil and Gas Journal

HOUSTON, Tex., May 18.—Developments in the Gulf Coast the past week were more unfavorable than otherwise. The completion of two more deep sand wells at Barbers Hill were the only development of particular mention. The appearance of water and a decline in flow of The Texas Company's wildcat well in Orange County was a disappointing setback to that new field. Heavy rains over the coastal area lasting most of the week delayed work in many fields and resulted in an almost entire suspension of geophysical exploration. The failure to bring in any important new production during the week resulted in another sharp drop in coastal production.

Barbers Hill saved the week from being devoid of completions of importance by the bringing in of two deep wells, one on the east side and the other on the southwest flank. The better well of the two was Talbert & Markle's No. 1 Illfrey, which came in Friday night flowing an estimated 1,600 bbls. daily from sand at a total depth of 5,190 feet. Gulf Production Co. earlier in the week completed its No. 1 Fisher fee flowing an estimated 600 to 700 bbls. daily from sand at 5,600 feet. Both wells marked small extensions of their respective pools.

Important Well Shows Water

The most discouraging event of the week was the appearance of water in The Texas Company's No. 1 Kuhn in the Mary E. Hall Survey in southwestern Orange County. The well which was brought in May 9 flowing initially at the rate of 1,900 bbls. daily of pipe line oil Saturday had dropped off in output and was making only 611 bbls. daily and this was accompanied by water and b.s. placed at 8 to 12 per cent.

This well, which indicated the opening of another major salt dome field in the coast, was regarded as one of the most important discoveries in the past year. It flowed steadily at the rate of between 1,500 and 1,600 bbls. daily of pipe line oil pinched in until the middle of the week when the water and b.s. began to show up, and since then the oil flow has taken a decided downward trend, partly because of reducing the chokes, and partly because of natural decline.

However, it is not doubted by operators that this district will prove a good field, but on the other hand it is general belief that this first well is an edge producer. No new locations had been announced late in the week but the producer will require offsets two ways, to the north and to the east, by The Texas Company. Gulf Production Co. may make a location but this will have to be approximately 2,500 feet to the north of The Texas Company's well.

Important Wildcat Decline

Shell Petroleum Corp.'s wildcat, No. 6 Watkins, on the newly opened Black Bayou Dome in Cameron Parish, still is producing, but has dropped off to around 22 bbls. of fluid hourly, of which approximately 75 per cent still continues to be water and b.s. The initial production was at the rate of 60 bbls. of fluid hourly. Shell's No. 9 Watkins, the first test to find oil, still is waiting to be put on the pump from the cap rock at 981 feet and in addition No. 10 Watkins late in the week was being tested in the cap rock at 979 feet for the field's third well. No. 6 Watkins is a deep well at 4,727 feet.

Deep Test Shows Little Oil

Some interest was centered on Humble Oil & Refining Co.'s No. 75 Simms-Smith, east of the Goose Creek Field, which came in during the week spraying an estimated 200 bbls. of fluid, of which a small amount was oil. Total depth of the hole is 4,419 feet. This is one of a series of deep tests drilled by the Humble around the outskirts of the Goose Creek area on the north and east. Some leasing activity has been going on to the north and east of this test as a result of the showings.

At Sweet Lake, Cameron Parish, Louisiana, Pure Oil Co.'s No. 8 Yount Lee Oil Co., which came in May 11 making an estimated 50,000,000 feet of gas with pressure of 2,200 pounds through a seven-sixteenths-inch choke, and which later, when pressure decreased to 1,700 pounds, started flowing some fluid, estimated at 200 bbls. in the first 15 hours, Saturday was flowing at the rate of 130 bbls. of fluid daily with pressure at 1,690 pounds through a half-inch choke. Of the fluid 39 per cent was oil and the remainder water, b.s., and sand.

Other Completions

Completions of the week in addition to those mentioned were: Marrs McLean's No. 11 Cade, High Island, flowing 250 bbls., 3,742 feet; Gulf Production Co.'s No. 2-A Smith, High Island, flowing 500 bbls., at approximately 3,100 feet; Rycade Oil Corp.'s No. 23 Wisdom, Nash, flowing 200 bbls. of oil, from sand at 4,259-4,360 feet; Humble Oil & Refining Co. and Valley Oil Corp.'s No. 2-A Washington, Raccoon Bend, 128 bbls., 3,253 feet; Liberty Oil & Sulphur Co.'s No. 1 Monroe, Liberty, pumping 50 bbls. of fluid, 50 per cent salt water; Minor Oil Co.'s No. 86 fee, Sour Lake, pumping 6 bbls. net oil, 1,087 feet; Weldon Oil Co.'s No. 18 Hooks, Saratoga, pumping 35 bbls. net oil, 1,584 feet; Yount Lee Oil Co.'s No. 48 McFaddin, Spindletop, flowing 600 bbls., 4,064 feet; the same company's No. 55 McFaddin, Spindletop, flowing 250 bbls., 3,975 feet; Fred Getty's No. 2 Jennings-Clemont, Jennings, pumping 50 bbls. of fluid, 90 per cent oil, 1,931 feet; Hercules Oil Co.'s No. 3 Paraffine, Edgerly, estimated 200 bbls., 3,583 feet.

Production is Down

Due to the fact that very little new production has been added by new wells the past two weeks and also to the general decline in output of virtually all fields, the daily average production of coastal fields fell off 6,967 bbls. to 149,909 bbls. Spindletop and Humble were the heaviest losers and particularly Humble, where there have been no completions in the prolific deep sand area on the south for over a month.

Daily average production in Southwest Texas continued to increase with further gains in the Bruner Pool, which averaged alone 45,572 bbls. during the week. Figures for both divisions for the week ending May 18 were:

GULF COAST
Average Daily Production Week Ending May 18
TEXAS

Allen	9
Barbers Hill	6,509
Batson	1,434
Big Creek	2,517
Blue Ridge	3,232
Brenham	285
Boling	1,850
Clay Creek	2,919
Damon Mound	675
DeWalt	11,286
Fannette	653
Goose Creek	6,065
High Island	1,599
Hull	8,696
Humble	6,484
Jasper	25
Markham	435
Nash	500
North Dayton	430
Orange	2,932
Orchard	192
Pierce Junction	20,008
Port Neches	1,360
Raccoon Bend	4,664
Saratoga	916
Sour Lake	2,703
South Liberty-South Dayton	6,907
Spindletop	28,696
West Columbia	6,363
Total Texas Coast	130,288
Total previous week	136,778
Decrease	6,490

South Louisiana

Anse La Butte	59
Bayou Bouillon	200
Black Bayou	144
Edgerly	859
Jennings	997
Hackberry	5,619
Lockport	3,798
Sorrento	293
Starks	450
Sulphur	2,425
Sweet Lake	522
Vinton	4,053
Welsh	35
Total	19,621
Total previous week	20,098
Decrease	477
Total Gulf Coast	149,909
Total previous week	156,876
Decrease	6,967

Southwest Texas

Dale	520
Branyon	27
Bruner	45,572
Gonzales	84
Kingsville	243
Larremore	161
Luling*	11,918
Lytton Springs	1,046
McMullen	61
Medina	30
Mirando district	12,458
Refugio	2,059
Somerset	1,702
Yoast	1,792
Total	77,673
Total previous week	74,659
Increase	3,014

*Includes: Caldwell County, 7,768 bbls.; Guadalupe County, 4,150 bbls.

Barbers Hill—Chambers County

Talbert & Markle's No. 1 Illfrey, east side of the dome, has set screen and was bailing late in the week. It is in oil sand at a total depth of 5,190 feet. These operators' No. 1 Schilling was abandoned at 2,400 feet. Rexal Oil Co.'s No. 1 Smith is drilling gumbo at 2,127 feet. This company's No. 2 McLean is drilling sand at 1,138 feet. Humphreys Corp.'s No. 1 Tarbutton, which drilled into Joe Bashara's No. 1 Tarbutton, is trying to fish stuck drill pipe at 4,350 feet. This company's No. 1-H Kirby is sidetracking at 1,220 feet.

No. 8 Kirby is rigged and No. 2-B Kirby, a former producer being deepened, is drilling hard sand and shale at 4,160 feet. Mills Bennett Production Co.'s No. 1 Hamman-Armstrong is drilling lime rock at 4,855 feet. Its No. 1 Smith (deep sand discovery well) is milling at 4,880 feet. This company's No. 2 Smith,

(Continued on Page 155)

FIVE NEW MUSKEGON PRODUCERS FLOW AT RATE OF 1,000 BBLS. EACH

By Special Correspondent

MUSKEGON, Mich., May 18.—Five of the 12 new oil producers completed in the Muskegon Field during the week flowed at the initial rate of 1,000 bbls. a day or more in the Dundee pay sands, setting a record for new production in any one week. Impending shipment of a large amount of Dundee crude oil by tanker and barge to refineries near Chicago is believed to have been partly responsible for the increased completions in the lower formation.

The 12 new wells made an actual and estimated initial flow aggregating 9,510 bbls. a day. Three gassers, two in the Dundee and one in the lower Traverse, and all in the Muskegon Township area, flowed at the initial rate of 3,500,000, 6,000,000 and 10,000,000 feet, respectively.

All of the eight new Dundee oil producers are in Laketon Township. One of the four new upper Traverse oil wells also is in Laketon Township, while the other three are in Muskegon Township. The total for the week was 15 new completions, all oil or gas producers.

The largest of the Dundee oil wells was E. B. Dake and R. L. Press' No. 1 Albert Young, SE NE Section 12-10-17, Laketon Township. It had the pay sands at 2,026-30 feet and flowed at the rate of 80 bbls. an hour for an estimated 1,800 bbls. initial with about 2,000,000 feet of gas.

Two Laketon Township Dundee oil wells were estimated good for an initial flow of 1,500 bbls., although neither had a 24-hour test. The Puritan Oil Co.'s No. 1 William Delong and L. J. Goudzwaark, NE SE Section 12-10-17, flowed 100 bbls. an hour flush at 2,016-20 feet. The Johnson Oil Refining Co.'s No. 9 John Thompson, SW NW Section 12-10-17, made 30 bbls. in 30 minutes at 2,050-53 feet and was increasing when drilling was suspended. It had a flow of about 2,000,000 feet of gas and was to be drilled to 2,056 feet.

Other Completions

Two wells were estimated good for 1,000 bbls. initial, although they were opened for only short periods for a flush test. Dixie Oil Co.'s No. 6-D Kate McLaughlin, NW SW Section 12-10-17, made 56 bbls. an hour for the first two hours' flush production at 2,050-53 feet. The United Petroleum Corp.'s No. 2 Peters, NE SE Section 12-10-17, was estimated good for 1,000 bbls. at 2,022-26 feet.

The Black Gold Corp.'s No. 1 Charles Robertson, NW SW Section 12-10-17, flowed 640 bbls. in the first 24 hours at 2,058-60 feet. Dixie Oil Co.'s No. 2-D J. D. Ross made 25 bbls. an hour, or 600 bbls. at 2,054-61 feet. Puritan Oil Co.'s No. 2 Delong and Goudzwaark, NE SE Section 12-10-17, on the Bear Lake flats, is good for about 500 bbls. at 2,025-28 feet.

The smallest completion in Laketon Township was the lone upper Traverse producer struck on the Albert Young lease of Harold H. Cornelius and Howard Brown of Grand Rapids. It made 350 bbls. initial daily flow with pay sands at 1,675 feet. The well is in SE NE Section 12-10-17.

One of the most important completions was the Continental Motors Corp.'s No. 10 fee, NW NE Section 22-10-16, Muskegon Township, about 2 miles southeast of the major producing area in the original upper Traverse Pool. It started flowing at the rate of 20 bbls. an hour at about 1,700 feet, but soon dropped to 200 bbls. a day. It is believed it may open new production southeast of the field.

The Gilette-Beebe Oil Syndicate No. 2, of Grand Rapids, got a 150-bbl. well in the upper Traverse on the Henry Smeltekop property, NW SW Section 5-10-16,

(Continued on Page 158)

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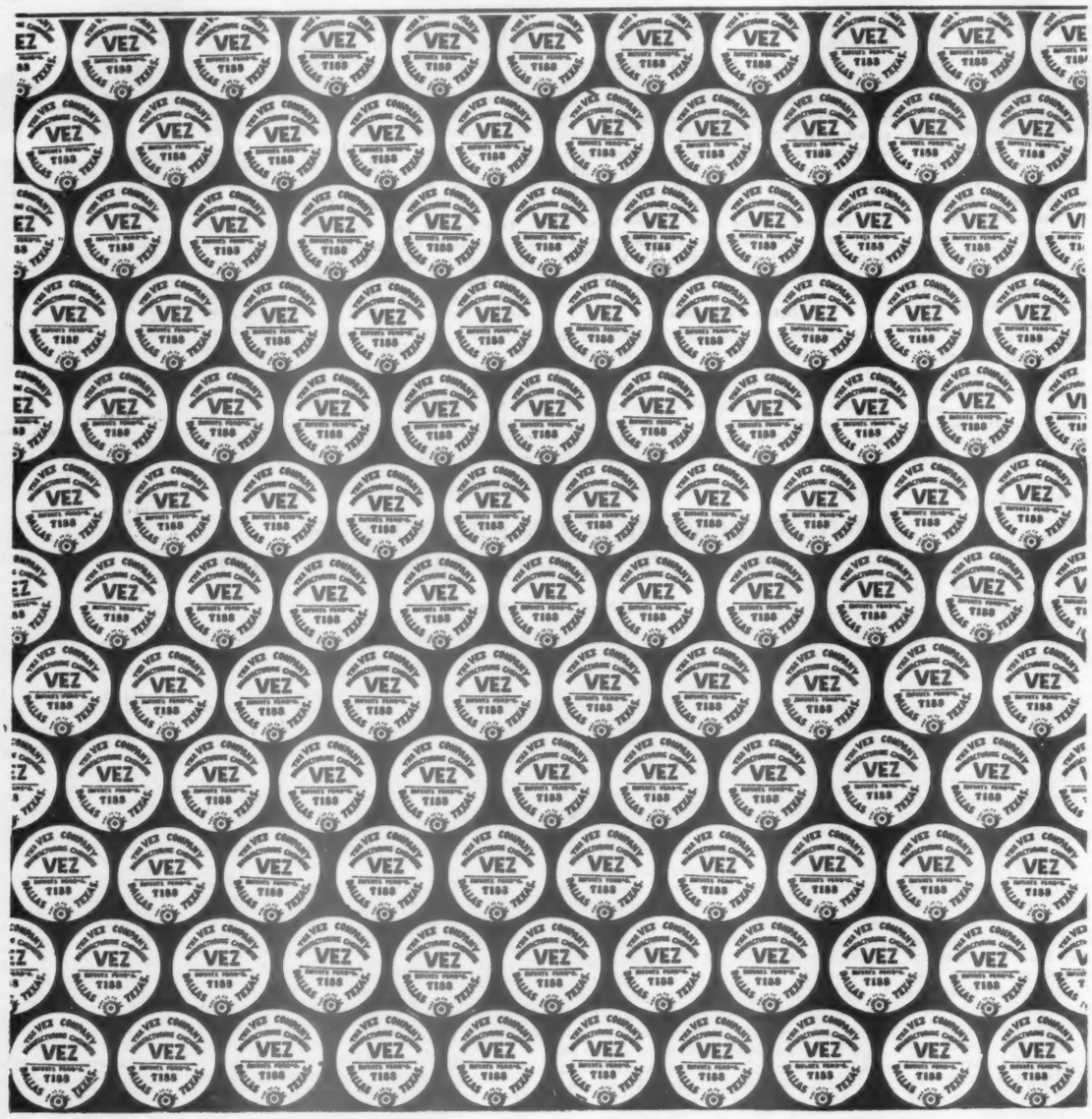

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New Activity in Rocky Mountains

Due to Lease Requirements and Resumption After Winter. Oil Moving from Lea County. Frannie Structure Attracts Notice

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., May 18.—Increased activity in all the Rocky Mountain states is noted, due not only to new wells being started to meet lease requirements, but the resumption of drilling on wells shut down during the winter. Oil is beginning to move from the Lea County area in New Mexico as a result of the completion of pipe lines into the district from the south and the new gas line to El Paso also was tested for the first time. In the northwestern part of the state a spectacular fire occurred at the Angel Peak well in San Juan County when the gas became ignited.

Utah shares in the increased activity, one well resuming after the winter shutdown, the Continental Oil Co.'s Boundary Butte test drilling slowly towards the objective and the Navajo Petroleum Co.'s well in Grand County striking salt water.

The Continental Oil Co.'s test 30 feet south of the "discovery" in the Vineland district in Colorado found water in the Dakota sand and is being abandoned, this apparently being the windup of a spectacular campaign that produced no results. The Texas Production Co.'s No. 5 Wick on the Moffat Dome in northwestern Colorado swabbed 689 bbls. initial from the Sundance sand.

The Frannie structure in Park County, Wyoming, again held the center of the stage this week when another Midwest well reached the top of the lime 100 feet shallower than in the discovery and indicating an increased importance for this operation. The Fargo Western Oil Co. completed a 150-bbl. well in the Poison Spider Field and the California Petroleum Co. abandoned a dry hole at LaBarge. The Prairie Oil & Gas Co. will drill a test southwest of Casper and the Producers & Refiners Corp. is starting two more tests.

NEW MEXICO

Lea County in southeastern New Mexico gradually is getting into a position where operators can begin to realize something on the immense prospecting work which has been in progress for several years. The Humble Pipe Line Co. has completed its line from Winkler County to the Skelly Oil Co.'s No. 1 Joyner, NE cor. SE Section 26-25-36, in the Jal district, and the well is on production. It is flowing around 434 bbls. a day through a half-inch choke. The Texas Pipe Line Co. will have its trunk line from West Texas to the coast in operation the first week in June and it will take some Lea County oil from the extension built into that area. The Texas Company has complete one 55,000-bbl. tank and is erecting additional storage. The El Paso Natural Gas Co.'s 16-inch line from Lea County to El Paso was tested the past week from the Marland Production Co.'s No. 1 Sholes in the Jal district. The gas from the wells jointly owned by the Texas Production Co., the Amerada Corp. and the Columbian Carbon Co., the Midwest Refining Co. and the Marland Production Co. is under contract to the El Paso company.

There were no outstanding developments in drilling operations in Lea County though several wells are at interesting stages. The Vacuum Oil Co.'s No. 1 State, center west section line Section 13-17-34, is drilling in lime at 4,400 feet and has not shown any important change since the gas at 4,090 feet, estimated at 5,000,000 feet, was encountered. Cranfill & Reynolds' No. 1 Wilson, NW NE Section 23-25-36, has been put on the pump and made 73 bbls. in 17 hours on May 10 from a total depth of 3,400 feet. The Texas Production Co.'s No. 1 Moore, SE cor. Section 24-20-32, is moving in and its No. 1 Humphreys, NE cor. SW Section 18-20-32, is bottome at 798 feet and preparing to run the 12½-inch. Same company's No. 1 Shepherd, SE cor. NE Section 6-26-37, cemented the hole at a total depth of 3,223 feet and is waiting for cement to harden, and its No. 1 Moberly, NW SE Section 17-26-37, is bottomed at 3,542 feet and cleaning out after a shot. It has been at this depth since February, when the tools were lost. The Miwest Refining Co.'s No. 16 Fisher, SE NW NE Section 5-20-35, is temporarily abanoned at 504 feet, to which depth it was drilled to comply with permit requirements. Its No. 22 Gregory, SE SW Section 31-25-37, is drilling at 1,600 feet in anhydrite and salt, and its No. 31 Capps, SW cor. Section 3-19-38, Hobbs district, is bottomed at 1,575 feet in lime. The 12½-inch was cemented at 1,549 feet. The Empire Gas & Fuel Co.'s No. 2-B State, SW SE Section 8-21-35, is drilling at 1,440 feet in red rock, and had a hole full of water at 1,090 feet. Same company's No. 1 Morton, SW cor. NE Section 28-20-32, commence spudding on May 8, and its No. 1 Closson, NE NW SE Section 6-22-36, is rigging up. J. D. Cook and others' No. 1 State, SE NE NE Section 12-21-33, is building derrick, and the Shell Petroleum Co.'s No. 1 Terry, SE SW NE Section 22-19-38, commenced spudding on May 9. The Gypsy Oil Co.'s No. 1 Humphreys, NW cor. SW Section 25-25-36, commenced spudding on May 11. Cranfill & Reynolds' No. 1-B State, NE cor. Section 2-21-33, is drilling water well, and its No. 1 Meyers, NE cor. SE Section 22-24-36, is fishing for tools at 150 feet. The Pueblo Oil Co.'s No. 1 Crosby, SW SW Section 29-25-37, is drilling in gray lime at 2,758 feet and had a show of oil at 2,695-2,700 feet. The Texas & Pacific Coal & Oil Co.'s No. 1 State, SE cor. SW Section 22-23-36, is drilling at 3,893 feet in lime and coring. It stopped for a test at 3,824 feet, where it made 8,000,000 feet of gas, estimated, and 3 to 5 bbls. of oil. Henderson, Dexter & Blair's No. 1 McDonald & Jewett, SE cor. Section 18-20-34, is drilling at 3,415 feet in gray sand. It had an oil show at 3,360-70 feet, where there was 50 feet of fluid in the hole, of which about one-third was oil.

Eddy County

One new location in Eddy County was announced in Livermore, Parker and others' No. 1 Etz, SE NW NE Section 25-16-30, to the northeast of the Artesia Pool, where the greatest activity is in progress. The Grayburg Oil Co.'s No. 1 Burch, C NW SW Section 19-17-30, in this district, had 1,000,000 feet of gas at 1,560-70 feet, followed by an increase at lower horizons and is drilling at 1,722 feet in gray and white anhydrite. The Pueblo Oil Co.'s No. 1 Lee, NE cor. Section 34-17-29, is moving in, and R. D. Compton's No. 1 Vandergriff, NW cor. NE Section 33-19-30, is drilling a water well. The Ohio Oil Co.'s No. 1 Sellery, SE cor. NE Section 22-16-30, has rig completed, and Flynn, Welch & Yates' No. 2 Gissler, SE cor. SW Section 12-17-30, is drilling at 460 feet in the red beds. The Midwest Refining Co.'s No. 31 Jones, SW cor. Section 26-19-31, is bottomed at 80 feet in red shale, and its No. 31 Lane, SW cor. Section 28-19-30, is drilling at 270 feet in the red beds. Leonard & Levers' No. 1 Haggerty, NE cor. NW Section 18-16-30, is drilling at 3,492 feet in hard brown lime. Eaton and others' No. 1 Rich, NW cor. SE Section 29-17-27, Artesia district, is shut down at 2,184 feet, where it is fishing for bit. George F. Getty, Inc. No. 1 Cook-Ironsides, C SW NW Section 8-20-29, Twin Mounds district, is bottomed at 330 feet in red rock and fishing for tools.

In Chaves County, the Transcontinental-California Co.'s No. 1 Robbins, SE cor. Section 1-14-28, 8 miles east of Hegerman, is drilling at 2,875 feet in black lime. It had 1,500 feet of sulphur water at 2,855-60 feet.

In DeBaca County, the Transcontinental Oil Co.'s No. 1 McWhorter, SW NW Section 6-3s-22, is bottomed at 4,040 feet in brown shale and underreaming at 3,827 feet, and the Matador Oil Co.'s No. 1 Wood, NE SW SW Section 6-4n-20, is drilling at 1,030 feet in red sand. The Pittsburgh Oil Co.'s No. 1 McAdoo, SW cor. NE Section 16-1s-27, is drilling in red shale at 4,480 feet with hole caving.

In Guadalupe County, Hanchett and others' No. 1 Rutherford, SW cor. NE Section 24-8-24, is bottomed at 2,260 feet in sand and fishing for three strings of tools in the hole.

Roosevelt County

In Roosevelt County, Sloan & Smith's No. 1 Lovern, C SE Section 4-3s-35, is drilling at 1,630 feet in black shale.

In San Miguel County, the Pioneer Oil Co.'s No. 1 Montezuma, SE cor. NW Section 14-15-16, is bottomed at 1,831 feet and drilling out plug. The 6⅝-inch was cemented on bottom.

In McKinley County, the San Juan Coal & Oil Co.'s No. 1 Santa Fe, NW SE Section 27-18n-9w, Seven Lakes district, is drilling at 1,100 feet in gray shale, and J. W. Halsell's No. 1 Fairchild, SW cor. Section 4-18-10, is drilling at 1,200 feet in gray shale.

San Juan County

San Juan County had a spectacular fire in the Angel Peak Oil Co.'s No. 1

(Continued on Page 180)

TURNER VALLEY OUTPUT UP IN APRIL; GREATEST ACTIVITY IN ITS HISTORY

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, May 18.—Detailed official figures show that production from the Turner Valley Field for April established a new record, the total output being 69,207, or 12,506 bbls. in excess of the March production of 56,701 bbls., which was the previous high. A large part of the increase was due to Home Oil Co.'s No. 1, with its output of 20,921 bbls. in April, compared with 17,578 in March. Royalite's No. 8, with 4,002 bbls. in April and no production in March; Dalhousie's No. 1, producing 1,359 bbls. against 630; Regent's No. 1, increased to 521 from 255; and Okalta's No. 1, making 5,729 bbls. in April against only 288 for March, were factors in the increased output. Detailed figures of production for individual wells were as follows:

IMPERIAL OIL, LTD., CRUDE NAPHTHA	April output	Daily average
Royalite's No. 4	16,087	536
Royalite's No. 7	2,199	73
Royalite's No. 8	4,002	133
Royalite's No. 9	695	23
Royalite's No. 13	216	7
Royalite's No. 14	744	25
Royalite's No. 17	271	9
Royalite's No. 18	5,300	176
Dalhousie's No. 1	1,359	45
Dalhousie's No. 6	492	17
Home Oil Co.'s No. 1	20,921	697
Illinois-Alberta's No. 1	2,097	67
Regent's No. 1	521	18
IMPERIAL OIL, LTD., CRUDE OIL		
Royalite's No. 8	100	3
Royalite's No. 10	124	4
Royalite's No. 11	100	3
Royalite's No. 14	414	14
Royalite's No. 15	440	15
Royalite's No. 20	784	26
Dalhousie's No. 5	1,218	41
Foothills' No. 1	2,130	71
Home's No. 1	268	9
Home's No. 2	764	25
Okalta's No. 1	5,729	191
Regent's No. 1	629	21
Total	67,604	2,249
REGAL OIL REFINERIES, ALL DELIVERIES		
Spooner's No. 1	608	20
New McDougall-Segur	196	6
United's No. 4	799	27
Total	1,603	53

The total, 69,207 bbls. for the entire field, gives an average daily production of 2,302 bbls.

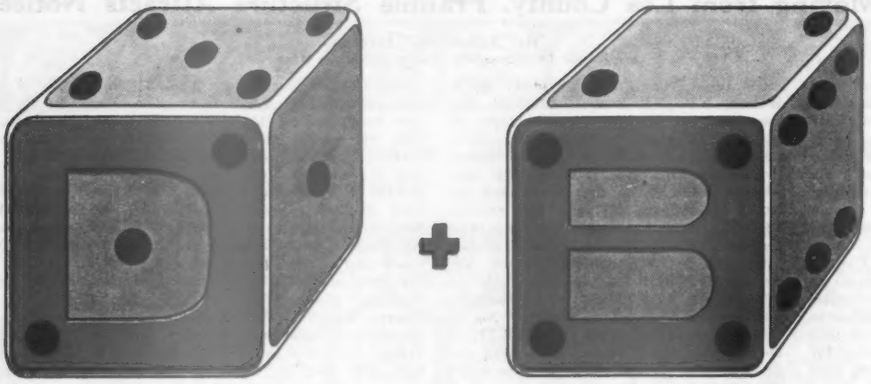
Another Big Producer

Calmont Oils' No. 1, LSD 2, Section 1-20-3w5, is apparently due to add another big producer in the central section. The well, which has been cleaning out for some time, blew into temporary production with an estimated wet gas flow of 30,000,000 feet. After blowing wide open for an hour the hole bridged. Two days later the well resumed blowing, continued for an hour and bridged. The second flow produced around 70 bbls. of naphtha, or at the rate of over 1,600 bbls. a day, but this was presumably accumulation from a series of shots. With a third blow later the crude naphtha recovery was around 80 bbls. for a similar period. Calmont's No. 1 is down around 5,655 feet, or about 190 feet in the lime. It got the lime 2,000 feet lower than Royalite's No. 4. Much difficulty has been experienced with lost tools. The hole is being cleaned out for steady production. The wet gas flow indicates it will measure up to Royalite's No. 4. Calmont's No. 3 will be drilled on the same LSD, between No. 1 and Okalta's No. 1; rotary outfit is being moved from Okotoks. Calmont's No. 2, LSD 11, Section 20-19,-2w5, on the Dallas lease in the south end of the field, is rigging up with rotary. Calmont's Nos. 4 and 6, on the same lease, have cellars dug, waiting for derricks.

Okalta's No. 1, LSD 1, Section 1-20-3w5, has increased its crude naphtha recovery to around 425 bbls., with recovery incomplete. Okalta's No. 2, LSD 8, same section, which has been producing light crude from the lower Kootenays at 3,300 feet, has started deepening to the lime.

New McDougall-Segur's No. 2, LSD 14, Section 12-20-3w5, in production around 5,309 feet, is gradually increasing its wet gas flow, with crude naphtha recovery around 85 bbls. New McDougall-Segur's No. 1, same LSD, which had a small light crude production in the Dakota sand, is being got in shape to drill to the deep lime horizon. Spooner Oils' No. 2, Section 24-20-3w5, is drilling 155 feet in the deep lime with slightly in-

(Continued on Page 160)



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By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., May 18.—When Gov. C. C. Young affixed his signature to Senate Bill No. 560 on May 15 the State of California advanced another step toward the conservation of natural resources and stabilization of the petroleum industry, especially on the Pacific Coast. The sponsors of this measure, which becomes effective immediately due to the urgency clause attached, believe it to be the most constructive piece of legislation affecting the oil industry enacted in the United States up to the present time. Although the basic principles have been commented on in detail it might not be amiss to mention again that it is fundamentally a gas conservation measure amending the state water law, under which authority the California State Mining Bureau functions. No attempt has been made in the new bill to regulate the production of crude oil, although any reduction in the production of natural gas will be sympathetically reflected in a corresponding drop in the output of crude. This is especially significant as it places the penalty of overproduction on flush fields where it rightfully belongs.

No information is available as to just how soon this new measure will be enforced although it is technically in effect now. It is probable the California State Mining Bureau will assume the initiative immediately as preliminary steps have already been taken toward carrying out the various provisions but it will probably be another 30 days before any definite action is undertaken due to numerous details which must be worked out. It is logical to assume Santa Fe Springs will be the first area to feel the effect of California's new gas conservation law due to the enormous amount of natural gas being wasted in that field through excess production. Long Beach, Elwood and Ventura Avenue will also receive early consideration as each is producing a surplus of gas. The situation at Kettleman Hills may also receive early consideration, although it is probable this field will be temporarily avoided pending further developments. Only one well has been completed in this field and although at least 75,000,000 feet of dry gas is going into the air this will probably enter the commercial market immediately upon completion of the Pacific Gas & Electric Co.'s natural gas line being laid from Buttonwillow to San Francisco, about 350 miles. Additional completions in this field will complicate matters, however, and make it obligatory for the State Oil & Gas Department to take steps to prevent waste.

Bureau to Use Discretion

The Mining Bureau, while it is definitely charged with specific obligations, has a certain degree of leeway and will undoubtedly use discretion in carrying out the provisions of the new law. A strict enforcement would reduce state production more than 250,000 bbls. per day and result in a temporary shortage of sweet refining crude. No such drastic regulation is desired either by the industry or the state as this would artificially increase the price of raw material and be reflected in a corresponding increase in the price of refined oil. The Kettleman Hills area will receive special consideration, in view of the concerted attempt by producers to limit the production of both oil and gas in this field. A tentative proposal to limit Kettleman Hills production to 60,000 bbls. per day is awaiting final action and may become a reality if the gas-oil ratio in subsequent completions is favorable. Operators in this field will not be permitted to complete any large number of prolific gas wells similar to No. 1 Elliott, the Milham Exploration Co.'s discovery well, which is flowing 75,000,000 feet of natural gas, 30,000 gallons of natural gasoline and about 3,500 bbls. of 60.2 gravity crude per day.

Subsequent drilling may change the present unfavorable gas-oil ratio of 21,500 feet of natural gas produced for each barrel of crude oil lifted as there is a prevailing opinion among many geologists the present productive Elliott sand is a high pressure gas zone overlying a definite oil horizon. Subsequent development may reveal the existence of a prolific oil zone which can be expected to yield a crude averaging somewhere in the neighborhood of 40 degrees A.P.I., provided sufficient gas has remained in the oil zone. The phenomenon of a well producing 60.1 gravity crude oil which has all the characteristics of gasoline and practically none of the heavier hydrocarbons is something new in California, although a small quantity of similar high gravity oil has been produced at Ventura Avenue and in a few other instances throughout the United States. An analysis of the natural gas and anythetic crude produced at Kettleman Hills is confirmatory evidence that this oil is not a true crude but is rather a condensate from the natural gas.

Underlying Kettleman Zone?

It may be assumed that considerable quantities of natural gas may have escaped from an underlying oil zone at Kettleman Hills and been trapped in the overlying formation. The General Petroleum's geological department recently killed its No. 1 Ochsner, a large gas well similar to the Milham's No. 1 Elliott, in order to drill ahead. This may have been done on the theory that the Milham's sand is being fed by an underlying oil and gas horizon. This well is temporarily held up with a frozen drill pipe which has delayed work for several days. Considerable care will be required in development work at Kettleman Hills especially during the next few months as it is likely a determined attempt will be made to locate a definite oil-bearing formation below the Elliott zone. This is an extremely hazardous undertaking as operators will be obliged to drill through the Elliott high pressure gas sand. The Kettleman Hills structure is a broad crest approximately 14 miles long with moderate dips on the flanks averaging between 20 and 30 degrees. Productive limits of the north dome will probably average 1 mile in width and approximate 10 miles in length as the first two wells to reach the Elliott zone are nearly 7 miles apart. Three domes are known to exist along the Kettleman Hills anticline, the two outer structures having complete closure. Commercial production has only been developed in the north dome, although favorable indications and a small quantity of heavy oil have been developed in the central or middle dome.

Drilling Operations

There are 23 strings of tools in operation in the Kettleman Hills Field with locations staked and rigs going up for an additional 13. The Standard, which owns every alternate square mile in fee, is by far the largest single operator with eight wells actually drilling and four rigs in course of construction. This company is followed by the Milham with three wells under way and the Marland, General Petroleum, Shell, Associated and Petroleum Securities with two each. The Bolsa Chica, George F. Getty, Ohio and Pacific Western follow, each with one drilling project to their credit. The Standard recently picked up a hard oil sand in its No. 81 in Section 11-22-17 at 6,135 feet and a string of 9-inch casing has been landed to take care of this showing in the event it may ultimately prove to be of sufficient thickness to warrant the expectation of securing production. This well is an offset to the Milham's discovery and the finding of oil sand at this shallow depth has created considerable interest among those interested in this structure. It will be recalled that the Milham's No. 1 Elliott tapped an oil sand just previous to its blowing in from 7,235 feet on October 5 last year following a fishing job of several months' duration. It is possible the Milham's discovery well may have shown a substantial deviation, in which event the discrepancy between the depth of these two projects can be easily accounted for.

It is a little too early to say which company will finish the next producer at Kettleman Hills as there are a number of drillers rotating below 5,500 feet with several already deeper than 6,000 feet.

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	328,410	2,120,347
Fuel oil	.....	.....	.....	.....	49,950	111,621
Diesel and gas oil	34,291	4,899	.....	.....	834,415	757,927
Gasoline	503,592	71,942	472,511	67,502	7,719,536	4,328,268
Naphtha distillate	.....	.....	.....	.....	81,750	.....
Coastwise—						
Crude oil	311,210	44,459	278,929	39,847	9,569,205	8,064,190
Fuel oil	515,827	73,690	397,035	56,719	8,479,044	7,328,495
Diesel and gas oil	29,525	4,218	90,363	12,909	612,425	559,922
Gasoline	57,403	8,200	289,262	41,323	4,081,863	1,695,935
Kerosene	2,494	356	3,582	512	21,271	24,415
Naphtha distillate	.....	.....	.....	.....	.....	171,566
Exports—						
Crude oil	28,543	4,078	63,800	9,114	1,332,871	866,292
Fuel oil	414,047	59,150	359,672	51,382	7,146,862	9,735,201
Diesel and gas oil	112,498	16,071	59,574	8,511	930,009	1,115,818
Gasoline	350,069	50,010	64,370	9,053	3,498,440	2,018,416
Kerosene	137,290	19,613	131,851	18,836	1,154,675	1,952,691

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC, GULF COAST PORTS

Diesel and gas oil	.....	.....	.....	.....	.....	342,425
Gasoline	115,185	16,455	.....	.....	1,050,732	966,932
Lubricants	.....	.....	.....	.....	.....	208,024
Coastwise—						
Fuel oil	.....	.....	63,155	9,022	911,689	1,560,872
Diesel and gas oil	50,092	7,156	.....	.....	284,312	119,266
Gasoline	199,916	28,559	.....	.....	1,584,819	1,533,212
Kerosene	4,177	597	.....	.....	43,824	87,565
Exports—						
Crude oil	.....	.....	.....	.....	121,603	79,199
Fuel oil	.....	.....	.....	.....	241,671	944,793
Diesel and gas oil	.....	.....	.....	.....	124,838	10,400
Gasoline	.....	.....	202,663	28,952	2,210,399	1,686,219
Kerosene	.....	.....	.....	.....	199,428	307,089
Lubricants	.....	.....	.....	.....	17,688	.....

TRINITY SAND TEST IN MEXIA AREA, LIMESTONE COUNTY, STRIKES WATER

By Neil Williams

CORSICANA, Tex., May 18.—For the second time, C. F. Lytle's No. 1 Thompson, Trinity sand test in the Mexia district of Limestone County, tested salt water and at the same depth of 6,061 feet. The hole filled to within 1,400 feet of the top with salt water when the plug was drilled and the test bailed. It is now shut down waiting orders. It has been reported at various times that the test eventually would be drilled to 10,000 feet in an effort to find the Trinity sand.

No completions have been reported in the East Central Texas division the past week except two abandonments, Transcontinental Oil Co.'s No. 1 Derden, Navarro County, quit in the Buda lime at 3,010 feet, and O. W. Killam and Phillips' No. 2 Bryant, Naber Survey, McLennan County, abandoned as a junked hole at 710 feet. Pure Oil Co. abandoned another geological test in Van Zandt County, its No. 1 Martin, Stephenson Survey. The latter company, however, is drilling a series of such tests in that county for geological information.

Other work in the division consisted chiefly of routine drilling with many tests still shut down. However, at Boggy Creek, Anderson County, Humble Oil & Refining Co. has another test, No. 2 Roberts, due in. This has drilled plug at 3,518 feet and is drilling deeper in sand at 3,521 feet. At Boggy Creek, Humble's No. 1 Beard is drilling shale at 431 feet; its No. 3 Holloway has spudded in; No. 1 Neches River is drilling chalk at 2,686 feet; No. 2-B Elliott & Clark is drilling chalk at 2,571 feet; No. 1 Holt is drilling chalk at 2,815 feet, and No. 2-A Todd is drilling sandy shale at 1,610 feet.

Humble Oil & Refining Co.'s No. 3-A Southern Pine, on the old Posey Saline, south of the Boggy Creek Dome in Anderson County, is spudding. On the Bethel Dome, Anderson County, Pure Oil Co.'s No. 1 Jackson is drilling shale at 1,836 feet. J. S. Cosden and associates' No. 2 Douglass, Keechi Dome, same county, is standing at 3,861 feet with drill stem still stuck.

The State of Texas evidently is entering the oil business in Cherokee County, adjoining Anderson County, and has started a test, No. 1 Asylum, which is drilling sticky shale at 1,037 feet.

In Upshur County, Amerada Petroleum Corp.'s No. 1 Wade, Fields Survey, is drilling shale and sand at 3,860 feet. Magnolia Petroleum Co.'s No. 1 Duran, Pine Hill, Rusk County, is drilling black shale at 1,753 feet.

W. D. Alexander and associates' No. 1 Anderson, Robertson County, J. Webb Survey, has been shut down in sand shale at 1,631 feet. It had a showing of oil at 1,541 feet.

In Falls County, Humble Oil & Refining Co.'s No. 1 Pucek is drilling lime at 1,381 feet. Caruth & Stewart's No. 2 Flowers is drilling shale at 671 feet.

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The General Petroleum's No. 1 Ochsner was the second well to get production in the north dome but this project was killed after showing an initial of 30,000,000 feet of gas daily in order that it might be deepened in search of more prolific production. This well, located in Section 26-22-18, about 7 miles southeast of the discovery, secured production after standing suspended for almost an entire year following a twistoff which left several stands of drill pipe in the hole. After sidetracking the fish the company drilled ahead and subsequently tested for production bringing the well in through a 2-inch bean. It showed a tubing pressure of 600 pounds and a casing pressure of 1,800 pounds. No. 1 Ochsner was spudded in on April 26, 1927, subsequently suspended on March 30, 1928, and work resumed again on November 4, 1928. It was given a preliminary production test April 2, 1929, and drilling operations resumed on April 12, 1929, after the initial flow had been killed. The General Petroleum, a subsidiary of the Standard of New York, has considerable acreage on the Kettleman Hills anticline and will undoubtedly develop substantial production when this area is thrown open to unrestricted drilling. This company started its first project at Kettleman Hills back in 1924 when No. 28 Ochsner was spudded in but, like other previous tests, failed to secure commercial production due to water trouble and a cessation of work before the pay had been reached. The General Petroleum also drilled test wells on the Kettleman and Burbank leases, small production of heavy unrefinable oil being developed on the latter property.

Santa Fe Springs

The week saw the completion of several large flowing wells in the Santa Fe Springs Field and a check of work under way indicates the probable completion of several more within a few days as there are quite a number rotating in the pay. The Wilshire Annex Oil Co. carried off completion honors by finishing an 8,640-bbl. producer when No. 4 Koontz was brought in under a natural flow from an even 6,800 feet, the hole having been finished with a string of 6⅝-inch landed and cemented at 6,388 feet. The oil from this new well is clean, the lead line cut averaging around 2 per cent. George F. Getty also chalked up an excellent well when No. 25 Nordstrum was recompleted in the O'Connell zone doing 5,695 bbls. of clean 33.9 gravity oil and 12,000,000 feet of saturated gas daily from 6,726 feet. This well, which is flowing under a pressure of 1,500 pounds on the casing, is producing from 478 feet of formation, the 6⅝-inch water string having been landed and cemented at 6,248 feet. No. 25 Nordstrum was originally finished in the Buckbee zone doing 3,290 bbls. per day from 5,887 feet in March of this year.

The Texas Company, which is experiencing unusual success in deep-zone development at Santa Fe Springs, increased its daily production 3,560 bbls. during the early part of the week by recompleting No. 4 Standlee in the O'Connell zone at 6,450 feet. The Standard listed two completions but both were relatively small. No. 21 South Whittier Community only showed an initial daily production of 630 bbls. from the O'Connell zone at 6,448 feet, while No. 10 Koontz showed an initial pumping of 138 bbls. per day from the Buckbee horizon at 5,785 feet. There are quite a number of new wells nearing completion throughout the field and daily production at Santa Fe Springs will consequently show a substantial increase within the next few weeks unless severely curtailed. Although substantial completions can be expected to be finished at Santa Fe Springs during the next several months, a check made early last week indicated a decline in all deep zones below the Meyer horizon. This was especially noticeable in the O'Connell zone which was producing 77,000 bbls. per day on May 8 and only 72,000 bbls. daily on May 15, a loss of 5,000 bbls. During the same period the Buckbee zone declined from 46,300 bbls. on May 8 to 42,500 bbls. on May 14, a drop of 3,800 bbls. Daily production of the Nordstrum zone declined 1,550 bbls. during the same period. These comparisons are based on pipe line runs for two days only and consequently would not reflect the status of each zone for the entire week as subsequent completions bolstered the output of each horizon.

Ventura Avenue

Two wells were put on production in the Ventura Avenue Field, both standing to the credit of the Associated Oil Co. The largest, No. 73 Lloyd, a south line well, came in under a natural flow doing 3,460 bbls. of relatively clean 30.7 gravity oil and 2,600,000 feet of wet gas daily from 7,425 feet. No. 6 McGonigle, located in the northeastern part of the field, showed an initial of 640 bbls. of crude and 1,300,000 feet of natural gas daily from 7,207 feet. Practically all operators are making preparations to prosecute additional development work, notwithstanding the probability production will be reduced in the near future when the new gas conservation law becomes effective. The Rincon Field, on the extreme western end of the Ventura Avenue anticline, jumped into the limelight when the Richfield Oil Co. cored a rather favorable looking showing and experienced heavy gas pressure in its deep test, No. 1 Hobson, at 7,342 feet. The showing is of special importance as upper zones failed to show substantial production. Some are inclined to believe the showing found by the Richfield at 7,342 feet in the Rincon Field correlates with the top of the deep zone at Ventura Avenue which is picked up at approximately 5,000 feet. If this theory is correct, Rincon operators may ultimately pull out of the red. Only a few wells in this field will ever pay out as the upper zones are very limited in thickness and do not register large production.

Midway-Sunset

There were no developments of special importance in the Midway-Sunset area with the exception of additional development work which has been getting under way out in the Maricopa Flats where the Signal Oil & Gas Co. recently completed a large producer in the Maricopa brown shale. The importance of this new work from a production standpoint is still problematical due to the possibility that the productive area may be somewhat limited due to lenticular conditions which have marked brown shale development in this field. The large royalties and substantial cash bonuses paid for acreage tend to indicate that a number of geologists anticipate the development of commercial production over a rather extensive area instead of being limited in scope as a result of lenticular conditions. The Signal Oil & Gas Co.'s No. 2 Sheehan, which resulted in the influx into this area, is still flowing at a substantial rate, production for the past 24 hours up to 7 o'clock this morning being 864 bbls. of exceptionally clean 26.8 gravity oil.

If present plans are carried forward a second pipe line will be in operation out in the Mount Poso Field of Kern County within 60 days. The Signal Oil & Gas Co. has just completed a preliminary survey and it is the present intention to lay a 6-inch line from Mount Poso to Bakersfield, approximately 15 miles, where a loading rack will be erected for tank car shipments over the Southern Pacific Railroad. It is likely the Signal Oil & Gas Co. will make its facilities available to other operators at present unable to move production because of the absence of pipe line facilities and the reluctance of refiners to contract for this oil. The General Petroleum was forced to resume production in the Mount Poso Field on May 1 due to stringent lease requirements with the result that its 8-mile pipe line to the west front area of the Kern River Field is handling about 3,000 bbls. daily. The Union Oil Co. may also find it necessary to resume production before the year draws to a close, in which event the company will be obliged to lay a pipe line out of this field if satisfactory arrangements cannot be negotiated for the utilization of the General Petroleum's line or the newly projected pipe line of the Signal Oil & Gas Co.

Seal Beach

The Standard put two wells on production in the Seal Beach Field and increased its daily production 3,231 bbls. No. 7 San Gabriel was brought in under a natural flow doing 821 bbls. of clean 26.5 gravity oil daily from 5,080 feet, while No. 20 San Gabriel came in flowing 2,410 bbls. daily from 5,576 feet. Although the Associated, Marland and Standard are not engaged in competitive drilling each company is running several strings of tools in this district and should finish additional completions during the next several weeks. New wells may also be expected in the Richfield district where several drilling projects are nearing completion. The last producer finished in this area was No. 2 Winnan of the Continental Oil Co., doing 225 bbls. daily from 4,712 feet. The Continental spudded in two new wells and is making

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IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well, location—	S-T-R	Depth	Status
Standard, No. 5-9 Saticoy, Ventura Co.	10- 2-22	6,213	br. sh. drilling
American Oil Co., No. 1 Camarillo, Ventura Co.	33- 2-20	1,098	fishing
Bolsa Chica, No. 1 Temescal, Ventura Co.	4- 4-13	769	cleaning out
The Texas Company, No. 1 Wiley Canyon, Ventura Co.	2- 3-19	510	suspended
Superior Oil Co., No. 1 Santa Paula, Ventura Co.	14- 4-21	416	hd. sd. drilling
Craise, F. A., No. 1 South Mountain, Ventura Co.	17- 3-21	Rig	suspended
Miley, E. J., No. 2 Red Mountain, Ventura Co.	7- 3-23	1,301	hd. sd. drilling
Miley, E. J., No. 3 Red Mountain, Ventura Co.	11- 3-24	Rig	rigging up
Shell, No. 1 Simi, Ventura Co.	31- 3-17	2,914	hd. sd. drilling
Continental, No. 1 Sulphur Mountain, Ventura Co.	21- 4-22	3,765	suspended
Continental, No. 2 Sulphur Mountain, Ventura Co.	22- 4-22	6,740	suspended
Lockwood Oil Co., Well No. 1, Ventura Co.	28- 8-21	Rig	rigging up
Milham Expltn., No. 1-A Buttonwillow, Kern Co.	8-28-23	4,662	gas well, idle
Milham Expltn., No. 2 Buttonwillow, Kern Co.	8-28-23	2,730	gas well, idle
Milham Expltn., No. 3 Buttonwillow, Kern Co.	8-28-23	2,694	gas well, idle
Milham Expltn., No. 4 Buttonwillow, Kern Co.	6-28-23	2,670	gas well, idle
Milham Expltn., No. 5 Buttonwillow, Kern Co.	5-28-23	2,500	gas well, idle
Milham Expltn., No. 6 Buttonwillow, Kern Co.	8-28-23	2,676	gas well, idle
Milham Expltn., No. 7 Buttonwillow, Kern Co.	6-28-23	2,720	suspended
Milham Expltn., No. 8-A Buttonwillow, Kern Co.	8-28-23	2,673	gas well, idle
Lincoln Drlg. Co., No. 1 Buttonwillow, Kern Co.	6-28-23	190	suspended
Richfield Oil Co., No. 2 Semitropic, Kern Co.	36-27-23	5,802	br. sh. drilling
Stabler, W. W., No. 1 Comanche Point, Kern Co.	23-32-29	3,409	suspended
Symark Oil Co., No. 1 Edison, Kern Co.	24-29-29	1,230	suspended
Elmer Oil Co., No. 1 Shafter, Kern Co.	8-28-25	6,100	suspended
Elmer Oil Co., No. 1 Bena, Kern Co.	15-30-30	2,014	suspended
Elmer Oil Co., No. 1 Rosedale, Kern Co.	33-29-26	2,600	redrilling
Taft Drlg. Co., No. 1 Union Avenue, Kern Co.	2-30-27	.....	location
Shell Oil Co., No. 1 Lerdo, Kern Co.	5-29-27	3,714	hd. sd. drilling
General Pet., No. 1 McFarland, Kern Co.	25-26-25	3,880	hd. sd. drilling
Union, No. 2 San Emidio, Kern Co.	5-10-21	3,011	br. sh. drilling
Currency Pet. Co., No. 1 Jacalitos, Fresno Co.	28-21-14	2,004	set pipe
Currency Pet. Co., No. 2 Jacalitos, Fresno Co.	14-21-14	260	suspended
Hornaday & Huggins, No. 1 Kerman, Fresno Co.	32-14-18	3,870	suspended
K. C. L. Oil Co., No. 1 Joaquin Ridge, Fresno Co.	7-19-15	114	suspended
Thomas Pet. Co., No. 1 Krayenhagan, Fresno Co.	33-22-17	568	cleaning out
Petroleum Securities, No. 1 Kerman, Fresno Co.	20-20-16	Mtl.	building rig
Petroleum Securities, No. 2 Kerman, Fresno Co.	28-20-16	.....	location
Union, No. 1 Huasna, San Luis Obispo Co.	24-32-15	3,598	br. sh. drilling
Union, No. 1 North Huasna, San Luis Obispo Co.	12-32-14	3,540	hd. sd. drilling
Midwest Refining Co., No. 1 Huasna, San Luis Obispo Co.	34-31-15	Rig	rigging up
Panorama Oil Co., Well No. 1, San Luis Obispo Co.	7-31-21	3,805	gr. sd. drilling
Shell, No. 2 Guadalupe, Santa Barbara Co.	26-10-35	2,190	abandoned
Shell, No. 3 Guadalupe, Santa Barbara Co.	25-10-35	Mtl.	structure surv.
Shell, No. 2 Goleta, Santa Barbara Co.	36- 5-31	3,412	test showing
Petroleum Securities, No. 1 Goleta, Santa Barbara Co.	.....	416	sd. drilling
Union, No. 1 Buel Canyon, Santa Barbara Co.	X- 7-31	414	sd. sh. drilling
Western Gulf, Point Conception, Santa Barbara Co.	X- 5-33	1,140	sd. sh. drilling
Standard, No. 1 Point Conception, Santa Barbara Co.	X- 5-34	2,494	hd. sd. drilling
Standard, No. 1 Tortuga Canyon, Santa Barbara Co.	.....	2,514	hd. sd. drilling
Olympic Oil & Ref. Co., No. 1 Mesa, Santa Barbara Co.	29- 4-27	2,456	pipe bad
Nugent, J. F., No. 1 Palisades, Santa Barbara Co.	.....	106	sd. drilling
Nevada Standard, No. 1 Goleta, Santa Barbara Co.	10- 4-28	3,618	sd. sh. drilling
General Pet., No. 1 Elwood, Santa Barbara Co.	21- 4-28	2,914	br. sh. drilling
Pacific Western, No. 1 Naples, Santa Barbara Co.	7- 4-29	Mtl.	building rig
Padre Oil Co., No. 1 Dos Pueblos, Santa Barbara Co.	18- 4-27	2,809	br. sh. drilling
System Oil Co., No. 1 Orcutt, Santa Barbara Co.	36-10-34	1,788	cleaning out
Keystone Oil Co., No. 1 Santa Maria, Santa Barbara Co.	32-10-34	Rig	rigging up
American Oil Co., No. 1 Summerland, Santa Barbara Co.	33- 4-25	809	suspended
Getty, Geo. F., No. 1 Summerland, Santa Barbara Co.	22- 4-26	4,406	sd. sh. drilling
Lincoln Drlg. Co., No. 1 Summerland, Santa Barbara Co.	22- 4-26	Mtl.	building rig
Keystone Oil Co., No. 1 Surf, Santa Barbara Co.	18- 7-35	Mtl.	building rig
Shell, No. 1 Summerland, Santa Barbara Co.	18- 4-25	Mtl.	building rig
Channel Oil Co., Well No. 1, Santa Barbara Co.	29- 4-27	6,304	suspended
Channel Oil Co., No. 1 Fellowship, Santa Barbara Co.	29- 4-27	1,080	suspended
Continental, No. 1 Carpenteria, Santa Barbara Co.	33- 4-25	4,130	suspended
Continental, No. 2 Carpenteria, Santa Barbara Co.	33- 4-25	1,580	sd. sh. drilling
Elwood Consd., No. 1 Goleta, Santa Barbara Co.	8- 4-29	3,430	cleaning out
Colusa Oil Co., Well No. 1 Colusa Co.	31-15- 4	610	hd. sd. drilling
Italo American, Well No. 1, Colusa Co.	20-13- 3	734	hd. sd. drilling
North Counties Oil Co., Well No. 2, Humboldt Co.	36- 2- 1	2,205	suspended
Humboldt Oil Co., Well No. 1, Humboldt Co.	6- 2- 1	3,041	redrilling
Applegate & Renshaw, Well No. 1, Merced Co.	24- 6-10	3,715	hd. sd. drilling
Kuhns, H. L., Well No. 1, Merced Co.	8-12-19	426	gr. sd. drilling
Calhoma Oil Co., No. 1 Livermore, Alameda Co.	9- 3- 3	1,544	suspended
Shell, No. 1 Dudley, Monterey Co.	15-22- 9	2,550	reaming
Union, No. 1 San Lucas, Monterey Co.	8-22- 8	102	sd. drilling
Marland, No. 1 Bradley, Monterey Co.	32-24-11	5,330	hd. sd. drilling
Tux Oil Co., No. 1 Los Gatos, Santa Clara Co.	15- 8- 1	852	suspended
Dudley Ridge Synd., No. 1 Tulare, Kings Co.	12-23-19	1,305	gas, jnkd hole
Associates Pet., No. 1 Lewis Creek, San Benito Co.	5-19-10	480	hd. sd. drilling

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Ring Pet. Co., No. 1 Inglewood, Los Angeles Co.	28- 2-14	5,487	suspended
Ohio Oil Co., No. 1 Playa Del Rey, Los Angeles Co.	22- 2-15	5,708	hd. sd. drilling
The Texas Company, No. 1 Long Beach, Los Angeles Co.	8- 4-12	.....	location
Petroleum Securities, No. 1 Hermosa, Los Angeles Co.	32- 3-14	5,099	br. sh. drilling
Standard, No. 1 Hawthorne, Los Angeles Co.	5- 3-14	4,618	sd. sh. drilling
Circle Oil Co., No. 1 Gardena, Los Angeles Co.	23- 3-14	4,280	cleaning out
Allied Pet., No. 1 Redondo, Los Angeles Co.	28- 3-14	4,629	sd. sh. drilling
Shell, No. 1 Redondo, Los Angeles Co.	20- 3-14	Rig	rigging up
Jackson, R. W., No. 1 Whittier, Los Angeles Co.	19- 2-11	1,477	hd. sd. drilling
Burlingham Pet. Co., No. 1 Compton, Los Angeles Co.	17- 3-13	1,829	sd. sh. drilling
Easton & Smith, No. 1 Calabasas, Los Angeles Co.	19- 1-17	2,982	suspended
Pugh Miller Drlg. Co., No. 1 Calabasas, Los Angeles Co.	6- 1-17	2,211	br. sh. drilling
Russell Oil Co., No. 2 Joughin, Los Angeles Co.	25- 3-17	1,704	br. sh. drilling
Pomona Oil Co., Well No. 1, Los Angeles Co.	32- 1- 8	1,106	hd. sd. drilling
Beard, G. F., No. 1 Brea Canyon, Los Angeles Co.	30- 2- 9	Rig	rigging up
Anchor Oil Co., No. 1 Puente, Los Angeles Co.	19- 2-10	4,820	suspended
Rucker, R. C., No. 1 Puente, Los Angeles Co.	27- 2-10	606	sd. sh. drilling
Shell, No. 1 Coyote, Los Angeles Co.	28- 3-10	629	sd. drilling
Prairie Oil Co., No. 1 Montebello, Los Angeles Co.	32- 1-12	.....	location
Union Oil Co., No. 1 Richfield, Los Angeles Co.	13- 3- 9	Rig	suspended
Southwestern Drlg. Co., No. 1 Richfield, Los Angeles Co.	21- 3- 9	3,048	sd. sh. drilling
Anderson, P. B., No. 1 Hasley Canyon, Los Angeles Co.	1- 3-16	230	sd. sh. drilling
Pico Dome, No. 1 Hasley Canyon, Los Angeles Co.	14- 3-16	345	suspended
Calif. Eastern, No. 1 Wickham, Los Angeles Co.	32- 5-17	3,517	suspended
Coastline Oil Co., No. 1 Devil Canyon, Los Angeles Co.	21- 5-17	514	suspended
Mesa Pet., No. 1 Newport, Orange Co.	21- 6-10	4,300	gr. sd. drilling
West. Drlg. & Prod. Co., No. 1 Newport, Orange Co.	18- 6-10	4,461	suspended
West. Drlg. & Prod. Co., No. 2 Newport, Orange Co.	18- 6-10	2,261	suspended
Hall Pet. Co., No. 1 Murrietta, Riverside Co.	23- 7- 3	975	suspended
Hemet Pet. Co., No. 1 Ward, Riverside Co.	9- 5- 1	3,232	suspended
Imperial Valley Oil Co., Well No. 1, Imperial Co.	32-11-10	2,758	sd. sh. drilling
Davenport O. & G. Co., No. 1 San Marcos, San Diego Co.	30-12- 8	847	suspended
Turner, S. S., No. 1 Escondido, San Diego Co.	25-12- 2	1,884	bl. sh. drilling

Are YOU interested in SAVING $6,000 per year —per tank

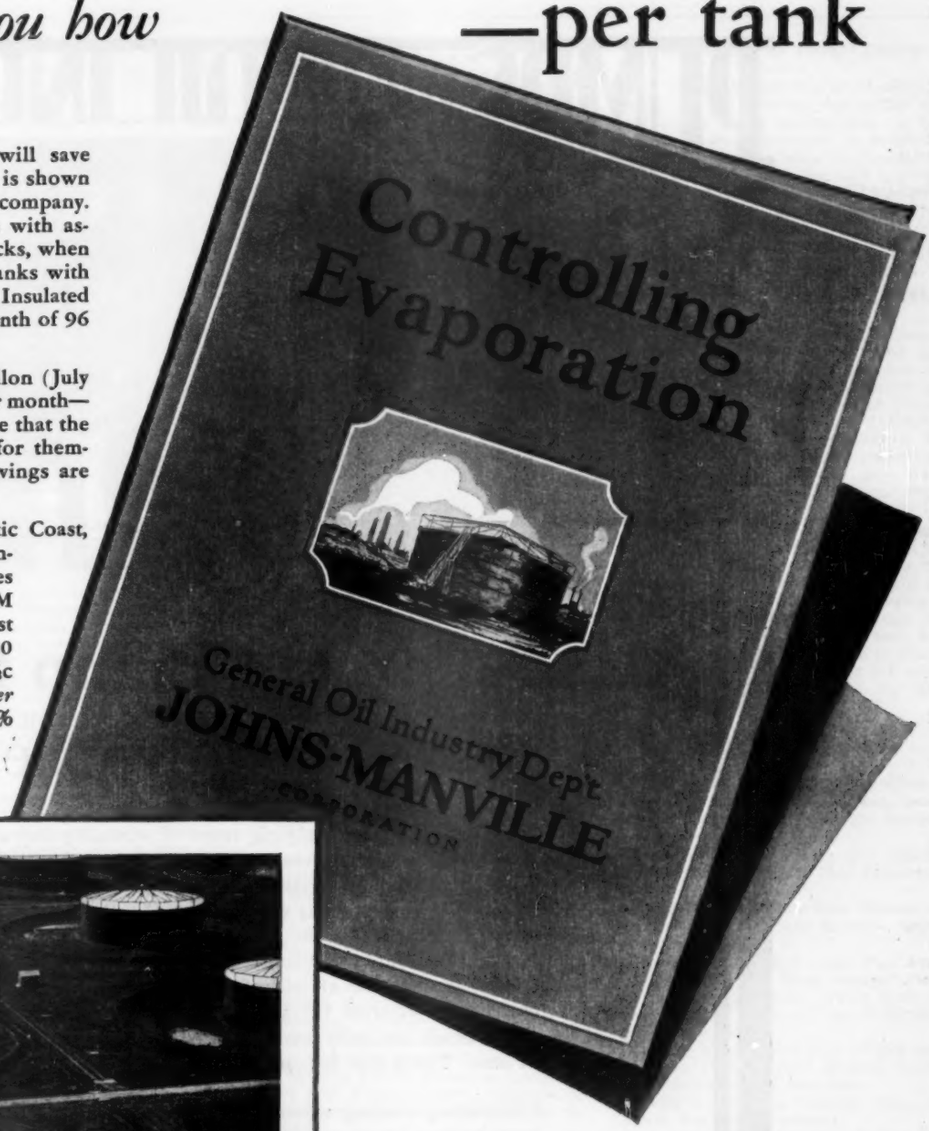
This Booklet tells you how others are doing it

HOW a scientifically insulated tank top will save money by controlling evaporation losses, is shown in the results obtained by an Oklahoma* oil company. Evaporation losses from 55,000 barrel tanks with asphalt roofing nailed over ordinary wooden decks, when compared with the evaporation losses from tanks with wooden decks *protected* with J-M Vapor-tight Insulated Tank Tops, showed an average saving per month of 96 barrels per tank.

Figuring the cost of gasoline at 12½c per gallon (July 1, 1925), the net value of the saving is $504 per month—$6,048 per year—which means in this instance that the J-M Vapor-tight Insulated Tank Tops paid for themselves in six and one-half months. These savings are not at all unusual.

For instance, in a refinery near the Atlantic Coast, evaporation losses from tanks equipped with uncaulked steel decks were compared with losses from the same kind of tanks equipped with J-M Vapor-tight Insulated Tank Tops**. In this test the saving shown was equivalent to over 120,000 gallons of gasoline per year per tank. At 12½c a gallon this is a *saving of $15,000 per year per tank,* or a return of between 300% and 400% on the investment.

*Tests on Oklahoma Crude 36° to 39° Bé
**Tests on Commercial Gasoline 56.1° Bé to 60.2° Bé



The thousands of dollars yearly saving that can be accomplished by using Johns-Manville Vapor-tight Tank Tops should interest every oil producer. Mail the coupon today and let us send you complete information regarding the Johns-Manville system.

IMPORTANT, too, is the ability of J-M Vapor-tight Insulated Tank Tops to protect tanks from fire. Though swept by flames of adjacent fires, tanks protected by J-M Insulated Tank Tops have come through without loss.

Thousands of barrels of gasoline are saved every year by the J-M Ground Conductor Network, which affords protection against lightning. In more than one thousand installations of the J-M Tank Tops with Grounded Conductor Network made in the past five years, not one fire has resulted from secondary lightning discharge. The large reductions in insurance rates granted when tanks are so equipped are well worth while. For these good reasons, 70,000,000 barrels of oil storage are now protected by J-M Vapor-tight Insulated Tank Tops.

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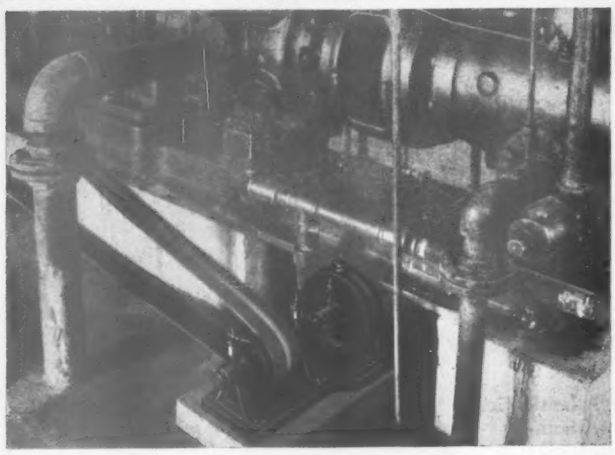

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LOOK into the pumping room of virtually any refinery or pipe line station and you will find Goulds Pumps rendering efficient, trouble-free service. "Goulds" to the oil industry is synonymous with complete satisfaction.

Nor is the Goulds line limited to the larger centrifugal and triplex pumps that all oil men are familiar with. There are multitudes of uses for smaller pumps in the oil industry and Goulds can take care of your requirements regardless of size. Their line is *complete.*

Circulating cooling water for air compressors requires perhaps only a small pump as shown above, but it renders a very important service and it must give satisfactory, trouble-free operation. Specify Goulds the next time you get a small pump from your supply house. Or call on a Goulds engineer. He will be glad to help you.

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GOULDS PUMPS

Oil Industry Construction News

GENERAL CONTRACT LET FOR ATLANTA GAS LINE

By B. E. V. Luty

PITTSBURGH, Pa., May 20.—The natural gas line from the Monroe Field, Louisiana, to Atlanta, Ga., has now come to a head. The Southern Natural Gas Co. has let the general contract to Ford, Bacon & Davis, Inc., New York, and the pipe has been arranged for, although it seems the formal orders have not actually been closed up to this writing. The total amount of pipe will be about 130,000 tons, quite an exceptional amount for a line pipe order.

This is the last of the very large projects that have come out in the past year. Various small pipe lines have been planned, but there is no sign that there will be any other very large projects, say projects involving over 50,000 tons of pipe for a single line or system.

Pipe mills continue operating at an average rate of about 55 per cent, with seamless tube mills running at about 70 per cent. There has been hardly any change in operating rates since about April 1, when pipe mill operations went up a few points. For tubular goods as a whole, the average operation may be set at about 60 per cent, seamless capacity being about one-fourth the capacity in welded.

There is a slight increase from week to week, on an average, in demand for standard or merchant pipe, but no great change even in the course of a month. Standard pipe demand is not running as heavy as three years ago, when there was exceptional demand on account of there being so much building. Now there is only a moderate degree of activity in building.

The steel trade as a whole continues in its course of sustained demand, representing a departure from the familiar course of seasonal decline. Steel production is as heavy as at any time, whereas recession from the spring peak usually begins in the late days of March. The official report of steel ingot production in April shows 2.4 per cent decrease from March, but that decrease was due purely to physical causes, producing units not functioning so well. This is the general trade analysis, based on knowledge that producers kept pushing for output throughout the month of April, and the official report contains confirmation, in that open-hearth output decreased while Bessemer increased, and no one could imagine that there was a decrease in demand for open-hearth steel when there was an increased demand for Bessemer. Mill operations are fully sustained to this writing, and there is no sign that there will be any decrease in the near future.

The Steel corporation's report of unfilled obligations May 1 made a very remarkable showing, for there was an increase of 17,045 tons during April. That was a small increase, but the fact that a large decrease did not occur is very remarkable, since in every year since 1922 April brought a large decrease, seasonal in character, the decreases averaging 363,073 tons. There have now been five successive months of increases, whereas seasonal decrease usually begins earlier in the year, sometimes as early as February.

Just why steel has departed so from precedent, by showing sustained demand at this time, is not fully explained. The demand is all accounted for, however, and perhaps really what ought to be explained is why in the past demand has decreased so regularly from late March into July. As to the future, it is impossible to make predictions with the least degree of confidence, but this much seems clear, that if demand is to be heavy in the second half of the year there will be practically no summer dip at all. There will be an active summer in steel, but that would not prove that the remainder of the year would be active.

Pig iron continues in its dull state, Connellsville coke is dull, and the scrap market is off about 50 cents in the week, heavy melting steel scrap being now quotable at $17.50 to $18, delivered Pittsburgh district.

START WORK ON MONROE TO ATLANTA GAS LINE

ATLANTA, Ga., May 18.—Preparations are being made for starting work on the laying of the natural gas pipe line from the gas producing fields of Louisiana to Atlanta, Southern Natural Gas Co. officials announced.

William Brothers Co. of Tulsa and the Oklahoma Contract Co. of Dallas, both of whom specialize in the laying of gas and water mains, hold the contract for placing this line, the first section of which, comprising some 200 miles of 22-inch pipe, will be laid immediately.

Working eastward from the Louisiana fields, completion of the last section through Georgia is expected in ample time to deliver gas to Georgia consumers by December 31. Birmingham, Ala., will be an intermediate point served and the section of the main extending from there to Atlanta will be built with feeders to other Alabama and Georgia cities.

PARALLELING OF LINES IN HOUSTON LIMITED

HOUSTON, Tex., May 18.—The city council has granted authority to the Public Service Commissioner to permit the Houston Natural Gas Co. to parallel the mains of the Houston Gas & Fuel Co. However, the Houston Natural Gas Co. was restricted to paralleling mains in that part of the city only where there are no permanently paved streets such as brick, concrete, asphalt, wood blocks or gravel.

This decision will prevent the Houston Natural Gas Co. from competing with Houston Gas & Fuel Co. in the downtown and industrial districts and in the more prominent residential districts. Under the plan it would appear that Houston Natural Gas Co. will only be permitted to parallel a comparatively small percentage of the Houston Gas & Fuel Co. survey, indicating that the decision of the council will restrict the Houston Natural Gas Co. from approximately 80 per cent of the total residential districts of the city.

REFUGIO PIPE LINE

CORPUS CHRISTI, Tex., May 20.—Crude oil from Refugio Field is to be exported through Corpus Christi, the contract having been let by Gulf Coast Pipe Line Co. to construct a 32-mile pipe line to this port from the field. A tank farm to consist of two 55,000-bbl. tanks and one 80,000-bbl. tank will be erected here upon property of Eggleston Oil Co. The pipe line will have carrying capacity of 10,000 bbls. a day. Deep-water terminals will be established for handling the oil.

SINCLAIR LINE FINISHED

The Sinclair Pipe Line Co.'s new line from the Cushing, Oklahoma, area to Chicago is complete. It is made up of a series of loops and as a loop was finished it was put into operation. The completion of the last loop gives the company an added capacity of 25,000 bbls. a day between the Mid-Continent Field and the Chicago refining center, where the line supplies the Standard Oil Co. of Indiana and the Sinclair Refining Co.'s refineries.

MAGNOLIA GAS TO LAY 90-MILE GAS LINE

SAN ANTONIO, Tex., May 20.—Magnolia Gas Co., subsidiary of the Magnolia Petroleum Co. of Dallas, will lay a 90-mile gas line from Mathis in San Patricio County to San Antonio, the first 30 miles 18-inch and the last 60 miles 20-inch and with capacity of 125,000,000 feet of gas daily. Absence of any such an amount of gas at the Mathis field which is but slightly developed and absence of a market for any such an amount at San Antonio leads oil men to the conclusion that the line at the Mathis end will be extended to some of the fields within a radius of 45 miles of Mathis, notably the Mirando fields in which Magnolia owns considerable developed gas; and to the further conclusion that the company will continue the line north to supply possibly Dallas and numerous industries and an increasing number of power plants.

One power plant at New Braunfels it is understood will use gas from the Magnolia and a 25-mile 14-inch line will be extended to that city from San Antonio. E. H. Kifer, general manager of the San Antonio Public Service Co. which is using gas from the Moody-Seagraves interests, has announced his company will use considerable gas from the Magnolia.

Entrance of the Magnolia as a purchaser of gas into Southwest Texas makes the third big interest transmitting natural gas from this territory, the others being the Houston Oil Co. and the Moody-Seagraves interests through their several subsidiaries.

The new Moody-Seagraves line from Refugio to Converse, a small town east of San Antonio, is now under construction and will further augment the supply of that company which is increasing the capacity of its line to Austin from San Antonio.

NEW BUILDING PLANNED

HOUSTON, Tex., May 20.—Plans for a six-story office building for the Houston Gas & Fuel Co., Houston natural gas distributing company, have been announced at the offices of the Moody-Seagraves interests, owners of the company. The building will be erected at Louisiana street and Walker avenue, eight blocks from the present two-story home of the company.

ENLARGE LEMONT REFINERY

The refinery of the Lemont Refining Co., located at Lemont, Ill., recently purchased by the I. A. O'Shaughnessy of St. Paul, Minn., will be enlarged to 5,000 bbls. daily. The refinery at present has a capacity of 1,500 bbls. daily. The plant will be operated under the name of Globe Oil & Refining Co., of which Mr. O'Shaughnessy is president.

ENLARGE RIO GRANDE REFINERY

The Rio Grande Oil Co. has completed plans for the enlargement of its refinery at El Paso, Tex. A complete lubricating oil plant is to be installed. The crude oil is to be secured from the Loving County area of Texas, where the Rio Grande company has production. The crude oil has a paraffin base.

RIVERSIDE EXTENDS PLANT

The Riverside Iron Works of East Calgary, western Canada's pioneer enterprise in the manufacture of oil well equipment, is extending its plant at a cost of $80,000. The company supplies completed rigs especially adapted to drilling conditions in western Canada.

LINE NEARING COMPLETION

The Veeder Supply Co. of Cherryvale, Kans., has the contract for laying the 55-mile pipe line of the Standard Oil Co. of Kansas from Neodesha to Sallyards, Kans. This line is being constructed of 30-foot length, 6-inch pipe and approximately 25 miles has been laid. The company expects the line to be completed within the next 30 days.

MAY PIPE NATURAL GAS INTO PHILADELPHIA

PITTSBURGH, Pa., May 18.—Columbia Gas & Electric Co. will send gas into Philadelphia if a market can be secured there. This was indicated by George W. Ratcliff, president of Manufacturers Light & Heat Co., a Columbia Gas subsidiary, in testimony before the public service commission, in connection with application to acquire pipe lines from Southern Pipe Line Co. and Pure Oil Co.

Mr. Ratcliff said the lines will be used to transport either natural, artificial or mixed gas, and that if no market is obtained the material in the lines will be used in other properties of the system. The selling companies have no use for the lines since they have been used but little during the past four years to transport oil. Six-inch lines totaling 512 miles call for a payment of $1,500 per mile and 245 miles of 8-inch at $2,500.

CONSTRUCTION REPORTS

Texas Pipe Line Co.'s 10-inch 22-mile line, Jal, N. Mex. to Wink, Tex., completed. West Texas-Port Arthur line being completed.

Reported 25-mile 14-inch line will be laid from San Antonio to New Braunfels, Tex.

Moody-Seagraves' line from Refugio to Converse, east of San Antonio, under construction.

Contract let by Gulf Coast Pipe Line Co. for 32-mile line from Refugio Field to Corpus Christi, Tex. Tank farm of two 55,000-bbl. tanks and one 80,000-bbl. tank to be erected.

El Paso Natural Gas Co.'s 16-inch line from Lea County, New Mexico, to El Paso was tested the past week.

Sinclair's line from Cushing, Okla., to Chicago has been completed.

Reported Independent Oil & Gas Co. has sold its 8-inch pipe line from Winkler to Pyote to Atlantic Pipe Line Co. which will extend line to the Shipley Pool in Ward County, Texas.

GAS PIPE CONTRACT

SALT LAKE CITY, Utah, May 18.—Utah Gas & Coke Co., subsidiary of Ohio Oil Co., which is piping natural gas into Utah cities and towns from Baxter Basin, Wyo., has closed a contract with Pacific States Cast-Iron Pipe Co. for 130,000 feet of 4-inch and 8-inch pipe to be used in extending existing gas mains in this city. Pacific States Cast-Iron Pipe Co. operates at Ironton, Utah, and is a subsidiary of Columbia Steel Corp.

LARGE CRACKING UNIT

A large cracking unit of the vapor phase type will be built at the Wood River, Ill., refinery of the Shell Petroleum Corp., according to Fred B. Lloyd, president of the Petroleum Conversion Co. The latter company is owner of the process.

A similar unit also will be constructed at the Los Angeles, Calif., refinery of the Western Oil & Refining Co. The vapor phase process operates at low pressures.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 48)

Jones & Leiner's No. 1 Jones, 420 ft. S and 15 ft. E of NW cor. John G. Reh Sur. No. 1,878 ..... Fishing 1,100 ft.

CRANE COUNTY

Duffey et al's No. 5 Cowden, 200 ft. each way from S and E lines Sec. 17, Blk. X, C.C.S.D.&R.G.N.G. ..... Top salt 970 ft.; drlg. 2,425 ft.

Gulf Prod. Co.'s No. 61 McElroy, Sec. 200, Blk. F, 660 ft. E of 58 ..... Shut down 2,916 ft.

Gulf Prod. Co.'s No. 63 McElroy, 2,762 ft. S and 2,310 ft. E of NW Sec. 206, Blk. F, C.C.S.D.&R.G.N.G.R.R. Sur. ..... Drlg. 1,091 ft.

Gulf Prod. Co.'s No. 7 Waddell, Sec. 10, Blk. B-23, 2,640 ft. from S, 330 ft. from W ..... Top salt 1,108 ft.; drlg. 1,565 ft.

CROCKETT COUNTY

Eppenaur et al's No. 2 Noelke, 500 ft. N and 1,250 ft. E of SE cor. Sec. 64, Blk. 1, I.&G.N.R.R. Sur. ..... Shut down 565 ft.

Lewis & Daniels' No. 1 Pecos River Bed, 19 yards S and 37 degrees E of NW cor. Sec. 33, Blk. 1, I.&G.N. Sur. .. Shut down 1,002 ft.

W. W. Donnelly & Young's No. 1 Shannon, SW SW SE Sec. 42, Blk. BB, T.C.R.A. Sur. ..... Shut down 745 ft.

W. W. Donnelly & Young's No. 1 Middlebuster, C Sec. 11, Blk. 9, D.&S.E. Sur. ..... 7,000,000 ft. gas at 1,663 ft.; shut down 1,755 ft.

W. A. Moncrief et al's No. 1 Massie, 1,170 ft. N and 1,320 ft. E of SW cor. Sec. 47, Blk. UV, G.C.&S.F. Sur. ..... 3,000,000 ft. gas 1,198 ft.; shut down 1,233 ft.; rig burned.

CULBERSON COUNTY

Deep Rock Oil Co. et al's No. 1 Kloh-Rumsey, 800 ft. S and 1,422 ft. E of NW cor. Sec. 33, Blk. 59, Twp. 7, T.&P.R.R. Sur. ..... Set 8¼-in. casing 1,433 feet; shut down 1,552 ft.

Hickey & Stiver's No. 1 C. O. Finley, 600 ft. N and 1,980 ft. W Sec. 20, Blk. 82 ..... Small oil show 1,331 ft.; pipe set 1,418 ft.; drlg. 2,105 ft.

W. S. Hillyer's No. 1 McGregor, C NW Sec. 14, Blk. 81 ... Shut down 720 ft.

Scott & Dittman's No. 1 Miller, 1,160 ft. N and 2,480 ft. E Sec. 1, Blk. 97, Public School Land ..... Rainbow 1,056 ft.; 300 ft. sulphur water 1,725 ft.; shut down 1,800 ft.; running 8¼-in. casing; reported 200 ft. oil in hole.

EL PASO COUNTY

Sillex's No. 1 Malone, 2,200 ft. SW and NW Sec. 46, J. M. Day Sur. ..... Shut down 1,010 ft.

EDWARDS COUNTY

A. M. Griffith's No. 1 Wardlow, Sec. 60, V-8, J. C. Clift Sur. ..... Drlg. 1,650 ft.

FISHER COUNTY

Bickerstaff et al's No. 1 McWhirter, 2,640 ft. E and 150 ft. N of SW cor. of Sec. 295, Blk. 2, H.&T.C. Sur. .... Shut down 2,000 ft. for orders.

Cranfill & Reynolds' No. 2 Willingham, 1,980 ft. S and 2,310 ft. W of NE cor. Sec. 207, B.B.B.&C.R.R. Sur. .. Fishing 3,486 ft.

Cranfill & Reynolds' No. 1 Fleming, 1,980 ft. S and 2,310 ft. E of NW cor. Sec. 207, B.B.B.&C.R.R. ..... Oil show 2,905 ft.; set 6-in. 3,160 ft.; shut down 3,218 ft.

Dunnegan Bros.' No. 1 T. Henry, 330 ft. N and E of SE cor. Sec. 21, George W. Burdett Sur. No. 322, but in Sec. 4, Robert Hibbett Sur. No. 331 ..... Drlg. 3,320 ft.

Gillman-McMurray & French's No. 1 Cleveland, 781 ft. N and 1,336 ft. W of SE cor. Sec. 116, Blk. 2, H.&T.C. Sur. ..... Underreaming 3,375 ft.

Landreth Prod. Corp.'s No. 1 Cooper, 440 ft. SE of NE cor. NW Sec. 115, Blk. 1, H.&T.C. Sur. ..... Show oil 2,760-70 ft.; shut down 3,702 ft.

Magnolia Pet. Co.'s No. 1 Lee, Sec. 357, 2,310 ft. from N and 4,286 ft. from W ..... Building rig.

Mesa Oil Co.'s No. 1 Griffin, 849 ft. N and 465 ft. E of NE cor. Sec. 20, School Land ..... Shut down 2,985 ft.

Roeser & Pendleton's No. 1 Haugh, 440 ft. S and 1,320 ft. E of NW cor. of SW of Sec. 191, B.B.B.&C.R.R. Sur. ..... Fishing 1,965 ft.

Texas-Phillips' No. 1 Hall, 330 ft. N and W of SE cor. Sec. 6, Blk. 20 ..... Hole full water 2,825 ft.; drlg. 3,060 ft.

White Eagle Oil & Ref. Co.'s No. 1 Hughes, 4,942 ft. S and 560 ft. W of NE cor. Cosby Sur. 220 ..... Fishing 2,382 ft.

GARZA COUNTY

Emerald Oil Co.'s No. 1 J. S. Reed, 990 ft. W and 330 ft. N of SE cor. Sec. 135, Blk. 5, H.&G.N.R.R. Sur. ..... Drlg. 1,990 ft.

Gulf Prod. Co.'s No. 1 Street, C Sec. 7, Blk. 8, H.&G.N. R.R. Sur. ..... Location.

GLASSCOCK COUNTY

Chas. Daniel et al's No. 1 Meek, 2,310 ft. W and 1,600 ft. N of SE cor. Sec. 7, Blk. 34, Twp. 3s, T.&P. Sur. .. Shut down 500 ft.

Gibson-Johnson's No. 1 Dean, 1,320 ft. S and E of NW cor. Sec. 2, Blk. 33, Twp. 2s, T.P.R.R. Sur. ..... Drlg. 400 ft.

World Oil Co.'s No. 1-C McDowell, 1,650 ft. S and 2,310 ft. W of NE cor. Sec. 21, Blk. 34 ..... Show free oil 2,335-51 ft.; total depth 2,398 ft.; pumped 237 bbls. on 24-hr. test; shut down.

Texas State Oil Co.'s No. 1 Coffey, 330 ft. from S and 990 ft. from E Sec. 19, Blk. 34, Twp. 2s ..... Location.

HOWARD COUNTY

Amerada Pet Corp.'s No. 9 Roberts, 1,115 ft. N and 622 ft. W of SE cor. Sec. 128, Block 29, W.&N.W. Sur. .... Top pay 1,260 ft.; 200 ft. oil in hole; drlg. 1,265 ft.

Amerada Pet. Corp.'s No. 10 Roberts, Sec. 137, Blk. 29, 990 ft. from N and 330 ft. from E ..... Spudding.

American Maracaibo Co.'s No. 5 Settles-C, 330 ft. S and W of NE cor. Sec. 6, Blk. 32, Twp. 2s, T.&P. ..... 300 qts. 2,212-27 ft.; total depth 2,285 ft.; top pay 2,210 ft.; shot 300 qts. from 2,212-27 ft.; preparing to pump.

F. H. E. Oil Co.'s No. 11-B Dora Roberts, 1,700 ft. S and 2,310 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W. Sur. ..... Fishing 2,510 ft.

F. H. E. Oil Co.'s No. 5-D Dora Roberts, 2,310 ft. S and 1,650 ft. E of NW cor. Sec. 136, Blk. 29 ..... Set 6-in. casing 2,930 ft.; shut down.

Fuhrman Pet. Co.'s No. 1 Read, 2,310 ft. N and 330 ft. E of SW cor. Sec. 41, Blk. 32, Twp. 1n, T.&P.R.R. Sur. .. Location.

Gibson & Johnson's No. 1 Read, 660 ft. N and W of SE cor. Sec. 47, Blk. 30, Twp. 1n, T.&P.R.R. Sur. ..... Drlg. 2,260 ft.

Green et al's No. 1 Slaughter, C SW Sec. 32, Blk. 31, Twp. 3n, T.&P.R.R. Sur. ..... Shut down 3,514 ft.

L. C. Harrison et al's No. 1 G. M. Podge Est., SE cor. Sec. 9, Blk. 30, Twp. 1s, T.&P. Sur. ..... Top lime 1,825 ft.; show oil 2,972-74 ft.; hole full fluid 3,257 ft.; total depth 3,257 ft.; plugging back to 3,000 ft.; shot 180 qts. from 2,855 to 2,920 ft.; pumping 8 bbls. oil and 4 bbls. water daily; shut down 3,257 ft.

Humble O. & R. Co.'s No. 3 Clay, Sec. 138, Blk. 29, 1,650 ft. from N and 330 ft. from W ..... Drlg. 900 ft.

Magnolia Pet. Co.'s No. 2 Hyman, 1,320 ft. W and 1,320 ft. N of SE cor. Sec. 88, Blk. 29, W.&N.W. Sur. ..... Underreaming 710 ft.

Magnolia Pet. Co.'s No. 13 Dora Roberts, 2,440 ft. N and 1,650 ft. E of SW cor. Sec. 136, Blk. 29, W.&N.W. Sur. ..... Rigging up standard tools 2,927 ft.; shut down.

Marland Prod. Co.'s No. 3 Clay-F, 250 ft. S and 660 ft. W of NE cor. Sec. 138, Blk. 29, W.&N.W.R.R. Sur. ... Shut down 2,675 ft. with show oil 2,595-2,675 ft.

Marland Prod. Co.'s No. 1 Clay-I, 210 ft. E and 1,520 ft. N of SW cor. Sec. 127, Blk. 29, W.&N.W.R.R. Sur. ..... Shut down 1,851 ft.

Marland Oil Co.'s No. 1 Clay-H, 330 ft. S and 990 ft. W of NE cor. Sec. 155, Blk. 29 ..... Location.

Marland Oil Co.'s No. 2 Clay-H, 990 ft. S and W of NE cor. Sec. 155, Blk. 29 ..... Location.

McGinley et al's No. 2 Hyman, Sec. 92, Blk. 29, W.& N.W.R.R. Sur. ..... Location.

Moody Oil Corp.'s No. 11 Roberts-E, 1,650 ft. S and W of NE Sec. 136, Blk. 29, W.&N.W.R.R. ..... Shut down 280 ft.

Moody Oil Corp.'s No. 12 Roberts-E, Sec. 136, Blk. 29, 1,650 ft. from N and 2,310 ft. E ..... Drlg. 600 ft.

Moody Oil Corp.'s No. 13 Roberts-E, 2,310 ft. S and 2,260 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W.R.R. Sur. .. Drlg. 2,601 ft.; top pay 2,571 ft.; bailing.

Moody Corp.'s No. 14 Roberts-E, Sec. 136, Blk. 29, 1,650 ft. from N, 990 ft. from E ..... Location.

Peck et al's No. 1 Scrivner, 2,440 ft. S and E of NW cor. Sec. 12, Blk. 32, Twp. 2s, T.&P.R.R. ..... Drlg. 1,170 ft.

Plymouth Oil Co.'s No. 2 Kloh et al, 900 ft. S and 1,650 ft. W of NW cor. Sec. 5, Blk. 32, Twp. 2s, T.&P. R.R. Sur. ..... Top pay 2,236 ft.; swabbing; total depth 2,300 ft.

Plymouth Oil Co.'s No. 3 Kloh et al, 1,650 ft. S and 990 ft. E of NW cor. Sec. 5, Blk. 32, Twp. 2s, T.&P.R.R. Sur. ..... Top pay 2,189 ft.; hole full oil; drlg. 2,256 ft.

Schermerhorn Oil Co.'s No. 6 D. Roberts-A, 1,650 ft. S and 330 ft. W of NE cor. Sec. 137, Blk. 29, W.& N.W.R.R. Sur. ..... Drlg. 1,730 ft.

Superior Oil Co.'s No. 14 Dora Roberts-B, 2,310 ft. E and 280 ft. S of NW cor. Sec. 137, Blk. 29, W.&N.W. Sur. ..... Shut down 200 ft.

Superior Oil Co.'s No. 15 Dora Roberts-B, 2,310 ft. S and 380 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W. R.R. Sur. ..... Drlg. 2,565 ft.

Sweeney et al's No. 3 Chalk, Sec. 124, Blk. 29, 2,440 ft. from N and 2,440 ft. from W ..... Shut down 1,720 ft.; to shoot.

Ward Oil Co.'s No. 7 Roberts, 2,310 ft. N and 380 ft. E of SW cor. Sec. 137, Blk. 29, W.&N.W.R.R. Sur. ..... Shut down 1,987 ft.

HUDSPETH COUNTY

American Land Co.'s No. 1 Lockhart & Roseborough, C SE Sec. 5, School Blk. 21 ..... Drlg. 530 ft.

California Co.'s No. 1 University, 3,821 ft. N and 2,554 ft. E of SW cor. Sec. 19, Blk. E ..... Set 16-in. casing 591 ft.; drlg. 1,000 ft.

Western States Oil Co.'s No. 1 Moore, C SE Sec. 16, Blk. 71, Twp. 6, T.&P. Sur. ..... Straightreaming 2,700 ft.; shut down 2,685 ft.; fishing.

Western States Oil Co.'s No. 1 Gardner & Moseley, NE NW Sec. 12, Blk. 18 ..... Hole full water 2,945 ft.; underreaming 8¼-in. casing at 2,840 ft.; shut down 3,140 ft.; trying to pull casing.

IRION COUNTY

Fuhrman Pet. Co.'s No. 1 J. O. Suggs, Lease 1, C SE Sec. 3,024, Blk. 24, H.&T.C. Sur. ..... Rigging up.

Kimbrough & Flinchbaugh's No. 1 Tankersley, 160 ft. S and 200 ft. W of NE cor. Sec. 712, Ford Willig Sur. .. Show oil 1,318-29 ft.; total depth 1,329 ft.

Kimbrough & Tuel's No. 1 J. M. Nutt, 1,920 ft. S, 200 ft. E of NW cor. Sec. 5, Gonzales Co. School Land .. Set 6-in. casing 1,360 ft.; show oil and gas; shut down 1,400 ft.

Pecos Valley Oil Co.'s No. 2 Stocks, Sec. 19, Blk. 3, 1,020 ft. from S and W, H.&T.C. Sur. ..... Location.

Wesley West et al's No. 1 J. D. Suggs, SE NW SE Sec. 19, Blk. 7, H.&T.C. Sur. .. .. Top pay 3,368 ft.; swabbed 35 bbls. oil and 40 bbls. water; 35.8 gravity oil; show oil 5,480-33 ft.; show oil 5,660-70 ft.; drlg. 6,761 ft.; reducing hole.

JEFF DAVIS COUNTY

J. K. Hughes Dev. Co.'s No. 2 Means, 1,622 ft. N line, 600 ft. W line Sec. 345, H.&T.C. Sur. ..... Show gas 3,271 ft.; fresh water 3,000-05 ft.; underreaming 5 3/16-in. casing; drlg. 4,005 ft.; 600 ft. fresh water 4,000-26 ft.

JONES COUNTY

Condor Pet. Co.'s No. 1 McDonald, 340 ft. S and 240 ft. W of NE cor. Lot 59, G. A. Kirkland Sur. A-550 .... Underreaming 2,425 ft.

J. E. Brewer's No. 1 Goodman, 150 ft. N and E of SW cor. Sec. 15, Blk. 19, T.&P.R.R. Sur. ..... Location.

Cosden & Herbert Oil Co.'s No. 1 Bickley, 320 ft. N and 310 ft. E of SW cor. S half NW Sec. 50, Blk. 18, T.&P. Sur. ..... Rigged up and shut down.

Cosden-Herbert et al's No. 3 Bickley, 330 ft. N and W of SE cor. of S half NW Sec. 50, Blk. 18 ..... Rig.

W. G. Clark et al's No. 1 Collins, 330 ft. S and E of NW cor. Sec. 29, Blk. 18, T.&P.R.R. Sur. ..... Location.

W. G. Clark et al's No. 1 Dickenson, W 80 ac. of N 160 ac. of S 320 ac. out of H. B. Williams Sur. No. 273 ..... Underreaming 2,170 ft.

P. K. French's No. 1 Lieson, 150 ft. N and E of SW cor. of E half NW Sec. 31, Blk. 14, T.&P.R.R. Sur. ..... Drlg. 1,200 ft.

Humble Oil & Ref. Co.'s No. 1 Bickley, 330 ft. N and 200 ft. E of SW cor. of N half of S half of SW Sec. 50, Blk. 18, T.&P.R.R. Sur. ..... Drlg. 2,410 ft.

Humble Oil & Ref. Co.'s No. 2 Bickley, 330 ft. S and W of NE cor. of SW Sec. 50, Blk. 18, T.&P.R.R. Sur. ..... Rig.

McGinley Corp.'s No. 1 Whittemore, 660 ft. N and W of SE cor. SE NE Sec. 39, B.B.B.&C. ..... Shut down 1,720 ft.

McNeeley et al's No. 1 Roscoe Bland, 1,175 ft. N and 240 ft. W of SE cor. Subdivision 20, A-164, DeWitt Co. School Land ..... Spudded and shut down.

Phillips Pet. Co.'s No. 3 Pomeroy, SW cor. of S 106 ac. SW Sec. 16, Blk. 19, T.&P.R.R. Sur. ..... Show oil 2,459 ft.; drlg. 2,460 ft.

Phillips Pet. Co.'s No. 1 Walters, 990 ft. S and 330 ft. W of NE cor. N 80 ac. of W 160 ac. of NW Sec. 16, Blk. 19, T.&P. Sur. ..... Show oil 2,442-68 ft.; underreaming 6-in. 2,501 ft.

Sedgwick Oil & Gas Co.'s No. 1 Brown, 660 ft. N and 1,320 ft. E of SW cor. Sec. 9, Blk. 1, T.&N.O. Sur. .... Location.

The Texas Company's No. 2 Camp, 2,829 ft. N and 323 ft. W of SE cor. Camp 189.5-acre lease, Sec. 13, T.&P. Sur., Blk. 19 ..... Underreaming 8-in. casing 2,355 ft.

The Texas Company's No. 3 Camp, 1,189 ft. S and 326 ft. W of NE cor. of Sec. 13, Blk. 19, T.&P. ..... Underreaming 8-in. casing 2,325 ft.

U. L. Tomberlin's No. 1 Horn, 1,980 ft. N and 600 ft. E of SW cor. of 502 ac. of Penney Sur. A-283 ..... Underreaming 8-in. casing 2,035 ft.

E. M. Treat Oil & Gas Co.'s No. 1 Hodge, 750 ft. S and 2,714 ft. W of NE cor. of S half A. Bell Sur. ..... Underreaming 8-in. casing 1,505 ft.

W. D. Wells et al's No. 1 Britton, 150 ft. N and 890 ft. E SW cor. 640-ac. tract, H.&W. Sur. 354-355 ..... Drlg. 1,850 ft.

White Eagle Oil & Ref. Co.'s No. 1 W. B. Teague, 933 ft. N and W of SE cor. Sec. 30, Austin & Williams Sur. No. 339 ..... Drlg. 595 ft.

KIMBLE COUNTY

Lindsay Bros.' No. 1 Anderson, Sec. 167, 1,320 ft. from N and E ..... Fishing 460 ft.

McLean & Jamison's No. 1 Cannon, 1,940 ft. N and 300 ft. W of SE cor. Robert Cochran Sur. ..... Drlg. 460 ft.

LOVING COUNTY

Lockhart & Co.'s No. 1 Hazell, 2,792 ft. SW of NE line and 660 ft. NW of SE line Sec. 84, Blk. 33, H.&T.C. R.R. Sur. ..... Drlg. 300 ft.

Lockhart & Co.'s No. 2 Hayzell, 330 ft. from NE and SE line of Sec. 84, Blk. 33, H.&T.C.R.R. Sur. ..... Drlg. 550 ft.

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Lockhart & Co.'s No. 1 Johnson, 660 ft. S and 1,980 ft. W of NE cor. Sec. 20, Blk. 56, Twp. 1, T.&P.R.R. Sur. ..... Drlg. 1,600 ft.

Lockhart & Co.'s No. 1 Wheat-H, 990 ft. from NE and SE lines Sec. 85, Blk. 33, H.&T.C.R.R. Sur. ..... Top salt 720 ft.; set 8¼-in. casing 2,295 ft.; drlg. 4,070 ft.

MENARD COUNTY

Cromwell & Duffey's No. 1 Winslow, C SE Sec. 32, T.&N.O. Sur. ..... Drlg. 700 ft.

MIDLAND COUNTY

Phillips Pet. Corp.'s No. 1 Stokes, 440 ft. S and W of NE cor. S. Beall Sur. No. 101, Blk. 37, Twp. 2s, T.P.R.R. Sur. ..... Top salt 1,610 ft.; drlg. 3,165 ft.

Shoupe et al's No. 1 Roy Parks, 1,320 ft. N and W Sec. 34, Blk. 41 ..... Shut down 4,980 ft.; to deepen.

MITCHELL COUNTY

Harry Adams' No. 2 Ellwood, Sec. 15, Blk. 18, 1,170 ft. from S and 2,490 ft. from W ..... Set 10-in. casing 572 ft.

The California Co.'s No. 2, Clark Lease No. 2, 2,190 ft. N and E of SW cor. Sec. 14, Blk. 28, Twp. 1n, T.P.R.R. Sur. ..... Drlg. 2,465 ft.

California Co.'s No. 7 Foster, Lease No. 1, Sec. 6, Blk. 29, Twp. 1s, T.P.R.R. Sur. ..... Location.

Ellis and Atlantic O. P. Co.'s No. 1 Elwood, 660 ft. N and E of SW Sec. 30, Blk. 18, S.P.R.R. Sur. ..... Set 8-in. casing 618 ft.; 1,000,000 ft. gas 633-48 ft.; total depth 648 ft.

McGinley & Seiger's No. 1 Scott, C of NE of SW Sec. 36, Blk. 17, S.P.R.R. Sur. ..... Shut down 730 ft.

Republic Prod. Co.'s No. 1 Scott, 330 ft. N and E of SW Sec. 20, Blk. 17, S.P.R.R. Co. ..... Building rig.

Simms Pet. Co.'s No. 1 Elwood, C SE of Sec. 29, Blk. 18, S.P.R.R. Sur. ..... Underreaming 10-in. casing 1,073 ft.; drlg. 3,660 ft.

Simms Pet Co.'s No. 1 Elwood-A, 660 ft. S and E NW cor. Sec. 33, Blk. 18, S.P.R.R. Sur. ..... Drlg. 1,870 ft.

Spence et al's No. 1 Brown, 2,040 ft. E and 1,320 ft. S NW cor. Sec. 37, Blk. 25, T.&P. ..... Set 8-in. casing 650 ft.

Teas & Wheeler's No. 1 Radford, 1,320 ft. N and W of Sec. 1, Blk. 27, T.&P. Sur. ..... Shut down 4,048 ft.

Westyde Investment Co.'s No. 1 Elwood, C SW Sec. 38, Blk. 16, S.P.R.R. Sur. ..... Rigging up.

Wilson et al's No. 1 Elwood, 330 ft. S and W NE cor. Sec. 54, Blk. 18, S.P.R.R. Sur. ..... Drlg. 390 ft.

NOLAN COUNTY

L. G. Bradstreet et al's No. 1 Kuteman, C NW Sec. 95, Blk. X, T.&P. Sur. ..... Drlg. 950 ft.

Phillips Pet. Co.'s No. 1 Plunkett, 330 ft. N and W of SE cor. NW Sec. 60, Blk. 23, T.&P. Sur. ..... Drlg. 730 ft.

PECOS COUNTY

Alexander & Lyle's No. 1 Myrtle Sellman, C SW SE Sec. 20, Blk. Z, T.S.Ry. Sur. ..... Top salt 814 ft.; top lime 1,602 ft.; 3,400,000 ft. gas from 1,611-26 ft.; spraying very little oil; sulphur water 1,652 ft.; shut down 1,655 ft.

Atlantic O. P. Co.'s No. 1 Trees, 330 ft. from N and 990 ft. from W line Sec. 108, Blk. 8, H.&G.N.R.R. Sur. ..... Drlg. 1,145 ft.

M. H. Black's No. 1 P.V.O. Co., 2,310 ft. from SE and 1,650 ft. from SW lines Sec. 22, Blk. 16, H.&G.N. Sur. ..... Top salt 1,090 ft.; total depth 1,647 ft.; top pay 1,618 ft.; made one 5-bbl. head oil.

H. R. Bell et al's No. 1 Gray, 150 ft. from S and 2,490 ft. from W line Sec. 593, G.C.&S.F.R.R. Sur. ..... Est. 200,000 ft. gas 1,250 ft.; drlg. 1,370 ft.

Buell & Hagan's No. 1 University-B, 330 ft. N and 2,310 ft. W of SE cor. Sec. 36, Blk. 18, University Land ..... Shut down 600 ft.

Cowboy Evans' No. 1 Pecos Valley, 2,310 ft. from NW line, 990 ft. from SW line of Sec. 36, Blk. 3, H.&T.C. R.R. Sur. ..... Rigging up.

Cromwell & Kimberlin's No. 1 Jackson, 2,490 ft. from NW line, 1,170 ft. from NE line Sec. 28, Blk. 3, H.&T.C.R.R. ..... Location.

Crowley's No. 1 Heiner, 2,400 ft. each way from N and E lines Sec. 559, G.C.&S.F.R.R. Sur. ..... Drlg. 1,225 ft.

California Co.'s No. 2 Smith, Lease 5, Sec. 16, 1,550 ft. from W and 200 ft. from N line Blk. 194, G.C.&S.F. R.R. Sur. ..... Total depth 1,597 ft.; bailed 15 bbls. oil in 24 hours; 43,000 ft. gas.

Clayton Williams' No. 1 Sanford, 160 ft. from NW line 1,150 ft. from SW line Sec. 55, Blk. 10, H.&G.N. .... Drlg. 60 ft.

Doran & McGee's No. 1 Pecos Valley, Sec. 34, Blk. 3, H.&T.C. ..... Fishing 1,030 ft.

Ditto Oil Co.'s No. 1 J. M. Montgomery, Sec. 104, Blk. 331, A-16,387 ..... Shut down 1,505 ft.

Sam Kitts and others' No. 1 Sherbino, 330 ft. from N and 990 ft. from W line Sec. 52, Blk. C-4, G.C.&S.F. R.R. ..... Fishing 250 ft.

Marland Oil Co.'s No. 1 University, Sec. 10, Blk. 17, 1,620 ft. from N. 1,020 ft. from E ..... Location.

Matador Oil Co.'s No. 3 Smith, 2,310 ft. from N and 990 ft. from E lines, Sec. 24, Blk. 194, G.C.&S.F.R.R. Sur. ..... Moving in machine.

Mauch & Kroger's No. 1 Holmes, Sec. 5, Blk. 178, T.C. Sur. ..... Shut down 1,442 ft.

McMan Oil & Gas Co.'s No. 6 Smith, C Sec. 25, Blk. 194, 2,127 ft. from N and 1,740 ft. from W ..... Rigging up.

Moncrief et al's No. 1 Tippett, 1,980 ft. from S and 660 ft. from W lines of Sec. 46, Blk. 194, G.C.&S.F. Sur. .. Drlg. 360 ft.

R. E. Moore's No. 1 Arnold, 1,320 ft. from S and 660 ft. from E lines of Sec. 18, Blk. 1, H.&T.C.R.R. ..... Drlg. 250 ft.

Perrin et al's No. 1 Eaton, 150 ft. each way from NE and NW lines Sec. 27, Blk. 3, H.&T.C. Sur. ..... 18,000,000 ft. gas 1,490-1,502 ft.; spraying salt water from behind 8¼-in. casing set at 1,180 ft.; shut down 1,502 ft.; 5 2/16-in. casing set on bottom with last joint perforated.

Plymouth Oil Co.'s No. 2 Perry, Sec. 29, Blk. 178, 330 ft. from N and E cor. ..... Underreaming 800 ft.

Phillips Pet. Co.'s No. 1 Pryor, 440 ft. S and E of NW cor. Sec. 78, Blk. OW, T.M.R.R. Sur. ..... Drlg. 1,050 ft.

Phillips Pet. Co.'s No. 2 Ramsey, 990 ft. S and 1,980 ft. W of NE cor. Sec. 17, Blk. 194, G.C.&S.F. Sur. ..... Underreaming 840 ft.

T. G. Shaw's No. 1 Yates, Sec. 58, Blk. 1, I.&G.N.R.R. Sur. ..... Location.

B. J. Spikes' No. 1 George Brown ..... Shut down 1,210 ft.; show oil 1,180-90 ft.

Schumaker et al's No. 1 Williams et al, 330 ft. N of middle of S line Sec. 1, Blk. 117, G.C.&S.F. ..... Shut down 1,200 ft.

Southern Crude O. P. Co.'s No. 1 Jackson T-129, Sec. 28, Blk. 3, 1,487 ft. from NE, 2,518 ft. from SE cor. .... Location.

Talbot and others' No. 1 Unsicker, 150 ft. each way from NE and SE cor. line of Sec. 25, Blk. 10, H.&G.N. Sur. ..... Location.

Taylor Link Oil Co.'s No. 1 University, 330 ft. from S and E Sec. 30, Blk. 16, University ..... Drlg. 400 ft.

Tidal Oil Co.'s No. 1 University, 1,320 ft. from S and W lines of Sec. 16, Blk. 20, University Land ..... Drlg. 135 ft.

Transcontinental Oil Co.'s No. 1 Sellman, 990 ft. N and W of SE cor. Sec. 7, Blk. 194, G.C.&S.F.R.R. Sur. .... Drlg. 1,345 ft.

Transcontinental Oil Co.'s No. 1 University, NE NW SW Sec. 15, Blk. 18 ..... Top lime 1,155 ft.; shut down 4,407 ft.

Transcontinental Oil Co.'s No. 2 University, C of SW SW Sec. 9, Blk. 17, University Land ..... Drlg. 1,465 ft.

PRESIDIO COUNTY

Phillips Pet. Co., Empire G. & F. Co., Delmar Oil Co. and C. E. Miller's No. 1 Tootle Est., C NE Sec. 75, Blk. 3, D.&P.R.R. Sur. ..... Set 8-in.; total depth 2,470 ft.; cleaning out.

L. C. Brite's No. 2 Brite, 2,500 ft. N and 2,300 ft. W of SE cor. Sec. 51, Blk. 12, G.H.&S.A. ..... Shut down 1,000 ft. for water well.

REAGAN COUNTY

Big Lake Oil Co.'s No. 1-C University, 2,598 ft. S and 250 ft. W of NE cor. Sec. 1, Blk. 2, University Land .. Drlg. 2,485 ft.

Kemrow Co.'s No. 1 Sawyer Cattle Co., 1,320 ft. from N and 1,980 ft. from E line Sec. 8, J. G. Robinson Sur. ..... Location.

Skelly Oil Co.'s No. 4 University, 2,310 ft. N and 990 ft. W of SE cor. Sec. 33, Blk. 8 ..... Top salt 1,270 ft.; shut down 2,621 ft.

REEVES COUNTY

Exploration Co.'s No. 1 A. A. Kinney, 1,500 ft. W of NE cor. Sec. 26, Blk. C-18, Public School Land, elev. 2,847 ft. ..... Total depth 2,900 ft.; shut down.

Earl Henby's No. 1 Brooks, 1,980 ft. N and 660 ft. W Sec. 16, Blk. 59 ..... Spudded and shut down.

Southern Crude O. P. Co.'s No. 1 Kloh-Rumsey, 2,310 ft. N and W SE cor. Sec. 23, Blk. 51 ..... Hole full water 1,140 ft.; fishing 1,440 ft.

David R. Thompson's No. 1 A. A. Eddins ..... Fishing casing 5,658 ft.; underreaming 8¼-in. casing.

Robert Penn et al's No. 1 Bowles, 2,310 ft. SW of NE cor. Sec. 36, Blk. 50, Twp. 8, T.&P.R.R. Sur. ..... Top salt 1,725 ft.; hole full fluid 5,176 ft.; drlg. 5,418 ft.

Lee O. White et al's No. 1 Kloh-Rumsey, 660 ft. S and E of NW cor. Sec. 5, Blk. 51, Twp. 10, T.&P. Sur. ... Underreaming 10-in. 1,375 ft.

RUNNELS COUNTY

Boyce et al's No. 1 E. O. Lange, 2,300 ft. S and 6,900 ft. W of NE cor. Austin & Williams Sur. No. 262 ..... Shut down 1,350 ft.

Foster et al's No. 1 Currie, 1,866 ft. SE of NW line, 335 ft. SW of NE line Gray Carroll Sur. ..... Cleaning out 620 ft.

Independent Oil & Gas Co.'s No. 1 Will Rollwitz, 330 ft. S and W of NE cor. S half M. Salinas Sur. No. 20½.. Drlg. 2,390 ft.

Marland Prod. Co.'s No. 1 August Herring, 330 ft. S and 1,650 ft. W of NE cor. Sec. 39, E.T.R.R. Co. Sur.. Underreaming 3,450 ft.

McLean et al's No. 1 G. W. Clayton, 150 ft. N line, 270 ft. from W line Sec. 135, E.T.R.R. ..... Shut down 1,185 ft.

Nourse & Tilton's No. 1 R. A. Stokes, 200 ft. S, 600 ft. E of NW cor. G.C.&S.F. Sur. No. 2 ..... Shut down 3,810 ft.

Pure Oil Co.'s No. 3 Giesecke, 11,656 ft. S and 1,269 ft. E of NW cor. Hughes ..... Drlg. 1,400 ft.

Pure Oil Co.'s No. 1 Russell, 367 ft. E and 12,231 ft. S of NW cor. Hughes Sur. No. 227 ..... Location.

Pure Oil Co.'s No. 2 Russell, 945 ft. E and 12,015 ft. S of NW cor. Sur. No. 227 ..... Location.

Vacuum Oil Co.'s No. 4 McMillan, 555 ft. S and 717 ft. W of NE cor. Lot 22, Domingo Diaz Sur. No. 532 .... Location.

SCURRY COUNTY

I. B. Mims et al's No. 1 J. J. Koonsman, Sec. 216, Blk. 2, H.&T.C. Sur. ..... Spudded and shut down 300 ft.

G. E. Dickman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur. ..... Shut down 2,710 ft.

STERLING COUNTY

F. & G. Oil Co.'s No. 1 W. L. Foster, C SE Sec. 20, Blk. 12, S.P.R.R. Sur. ..... Show oil 1,296-98 ft. and 1,356-58 ft.; fishing 2,182 ft.; shut down 2,503 ft.

George L. Miller's No. 1 Foster, 3,690 ft. S and 1,397 ft. W of NE cor. Sec. 4, Blk. 31, T.&P. Sur. ..... Set 12½-in. casing 830 ft.; set 8-in. casing 2,138 ft.; shut down 2,982 ft.

SUTTON COUNTY

Phillips Pet. Co.'s No. 1 A. G. Holman, 2,310 ft. S and 330 ft. W NE cor. Sec. 25, G.C.S.D.&N.G.R.R. Sur. ... Show gas 6,430 ft.; shut down 6,500 ft.

L. G. Priest's No. 1 Allison, 1,320 ft. N and E of SW cor. Sec. 52, Blk. A, T.&P. Sur. ..... Set 15-in. casing 530 ft.; fishing 2,440 ft.

Southern C. O. P. Co.'s No. 1 Allison, 2,310 ft. S and 320 ft. W of NE Sec. 41, Blk. K, G.H.&S.A. Sur. ..... Fishing 4,445 ft.

TAYLOR COUNTY

V. B. Jameson's No. 1 Webb, 1,170 ft. S and W of NE cor. Sec. 46, Lunatic Asylum Land ..... Drlg. 2,410 ft.

Mid-Continent Oil & Gas Co.'s No. 1 Taylor, 990 ft. W, 215 ft. N SE cor. 100-ac. tract, Sec. 18, Guadalupe School Land Sur. ..... 300 ft. oil 2,284-87 ft.; swabbed 5 bbls. 2,445-50 ft.; shut down 3,006 ft.; ran bailer 25 ft. off bottom; no oil; total depth 3,087 ft.; plugged back to 2,468 ft.; shot 30 qts. 2,443-60 ft.; 1,100 ft. fluid in hole; cleaning out.

Root Drlg. Co.'s No. 1 Martin, 990 ft. E and 1,650 ft. N of SW cor. Sec. 30, Blk. 19, T.&P.R.R. Sur. ..... Drlg. 1,500 ft.

Wentz Oil Corp.'s No. 1 Armour, 275 ft. N and 330 ft. W of SE cor. W half Sec. 16, Blk. 6, S.P.R.R. Sur. .. Shut down 2,250 ft.

TERRELL COUNTY

Big-Bend Oil Co.'s No. 1 Barrett, C NW Sec. 155, Blk. D, M.-K.-T.R.R. Sur. ..... Spudded and shut down.

Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 6, Blk. D-7, E.L.R.R. Sur. ..... Drlg. 2,200 ft.

Mrs. J. B. McPhee's No. 1 Sam Belt, C Sec. 78, Blk. D-7, E.L.&R.R. Sur. ..... Drlg. 450 ft.

Milham Exploration Co.'s No. 1 Bassett, Sec. 76, Blk. Y, W. E. Robertson Sur. ..... Cem. 6⅝-in. casing 3,986 ft.; shut down 4,800 ft.

Woodley & Jones' No. 1 Pankenham, C SE NW Sec. 43, Blk. B-2, C.C.S.D.&N.G.R.R. Sur. ..... Drlg. 650 ft.

TERRY COUNTY

Kingsland O. P. Co.'s No. 1 Brownfield, C NW SW SW Sec. 7, Blk. 1-A, E.L.R.R. Sur. ..... Fishing bailer 5,080 ft.

TOM GREEN COUNTY

Fitzgerald & Taliaferro's No. 1 Bennett, C SW Sec. 1,628, E. H. Ranger ..... Shut down 1,920 ft.

Williams et al's No. 1 Willeke, 2,500 ft. N and 75 ft. E of SW cor. Sec. 3, Deaf & Dumb Asylum Land ..... Total depth 750 ft.; hole full sulphur water 750 ft.

UPTON COUNTY

Humble O. & R. Co.'s No. 11 Ricker, 1,320 ft. from NE cor. and 5,390 ft. from NW line Sec. 5, Denton Sur. A-127 ..... Drlg. 2,282 ft.

Wentz Oil Co.'s No. 5 Shirk, 2,310 ft. N and 1,650 ft. W of SE cor. Sec. 35, Blk. 1, M.-K.-T.R.R. Sur. ..... Top salt 815 ft.; cleaning out 2,181 ft.

YOAKUM COUNTY

Weekley Oil Corp.'s No. 1 Knight, C NW Sec. 791, Blk. D, John Gibson Sur. ..... Fishing 1,015 ft.

VAL VERDE COUNTY

Independent Operators' No. 1 Whitehead, SE SE Sec. 30, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ..... Shut down 4,850 ft.

O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. ..... Gas sand 2,491-2,520 ft.; tested 125,750 ft. gas; reset 8-in. 2,511 ft.; shut down 4,210 ft.

Producers Oil Co. et al's No. 1 Everett Bros., 2,310 ft. S and 330 ft. E of NW cor. Sec. 40, Blk. DB, C.C.S.D.&R.G.N.G. Sur. ..... Shut down 2,450 ft.

Dyar Bros. et al's No. 1 Wilson, 6,330 ft. N NE cor. Sec. 1, T.&P. Sur., thence 1,680 ft. E Sec. 115, Blk. E, G.C.&S.F. Sur. ..... Total depth 2,715 ft.

Valvert Oil Corp.'s No. 1 Bassett, C NE Sur. 47, Blk. Y .. Set 15⅛-in. casing 767 ft.; set 10-in. casing 1,510 ft.; shut down 3,760 ft.

WARD COUNTY

Atlantic & Delmar Co.'s No. 2 Hayzlett, 150 ft. each way from W cor. E Sec. 17, Blk. 5, H.&T.C. ..... Drlg. 640 ft.
Gulf Prod. Co.'s No. 2 Hutchins, 330 ft. N and E Sec. 7, Blk. O ..... Running 10-in. casing 930 ft.
Barstow Oil & Gas Co.'s No. 1 Gillespie, Sec. 50, Blk. 33.. Spudded and shut down.
Gulf Prod. Co.'s No. 5 O'Brien, 330 ft. each way NW of SW Sec. 18, Blk. F, G.M.M.B.&A. Sur. ..... Drlg. 1,075 ft.
Gulf Prod. Co.'s No. 1 Wrisden, 216 ft. NW, 1,107 ft. SE Sec. 18, Blk. 5 ..... Location.
J. H. L. Oil Co.'s No. 2 Hayzlett, 1,100 ft. from SW and 220 ft. from SE line Sec. 17, Blk. 5, H.&T.C. ..... Total depth 2,432 ft.; flowing 122 bbls. 24 hours.
Kemper-Kimberlin's No. 1 Thompson, 1,470 ft. NE, 150 ft. NW Sec. 15, Blk. 5 ..... Location.
E. B. Lovelace et al's No. 1 Redman, 1,980 ft. NE of SW line and 1,980 ft. SE of NW line, Sec. 162, Blk. 34, H.&T.C.R.R. ..... Fishing 960 ft.
Shipley et al's No. 1 Monroe, 330 ft. SE SW Sec. 2, Blk. 1 ..... Location.

WINKLER COUNTY

American Maracaibo Co.'s No. 2 Hendricks-B, 1,980 ft. N and 1,650 ft. E of SW cor. Sec. 28, Blk. B-5 ..... Cem. 12½-in. casing 170 ft.; top lime 2,599 ft.; top pay 2,731 ft.; 2,000 ft.; oil; increase 2,875 ft.; drlg. 2,932 ft.
Barnsdall Oil Corp.'s No. 3 Tobe Morton, 990 ft. N and 330 ft. E of SW cor. Sec. 26, Blk. B-12 ..... Cellar.
Empire Gas & Fuel Co.'s No. 1-B Daugherty, 2,310 ft. S and 990 ft. W of NE cor. Sec. 3, Blk. 74 ..... Top lime 2,823 ft.; oil and gas show at 3,165 ft.; drlg. 3,378 ft.; flowing 15,000 bbls. daily; cem. 6⅝-in. casing 3,382 ft.; total depth 3,780 ft.
Gulf Prod. Co.'s No. 1 Daugherty, 330 ft. S and W of NW and W of Sec. 22, Blk. 26 ..... Drlg. 2,360 ft.
Gulf Prod. Co.'s No. 1 Clapp, 330 ft. S and W Sec. 37, Blk. 26 ..... Location.
Humble O. & R. Co.'s No. 12 Hendricks-C, 1,980 ft. N and 1,325 ft. E of SW cor. Sec. 10, Blk. B-12 ..... Moving in rig.
Humble O. & R. Co.'s No. 1 Walton-A, 2,310 ft. N and 330 ft. E SW cor. Sec. 48, Blk. 26 ..... Top salt 970 ft.; drlg. 2,250 ft.
Kermit Dev Co.'s No. 1 Carter, 640 ft. S, 2,227 ft. W Sec. 27, Blk. B-3 ..... Shut down 400 ft.
Magnolia Pet. Co.'s No. 2 Scarborough, 1,620 ft. N and 990 ft. W SE cor. Sec. 1, Blk. C-22 ..... Drlg. 635 ft.
Prairie O. & G. Co.'s No. 2 Daugherty, 330 ft. S and 990 ft. E of NW cor. Sec. 16, Blk. 74 ..... Top lime 2,756 ft.; top pay 2,890 ft.; swabbed 65 bbls. 24 hrs.; total depth 3,209 ft.
Prairie O. & G. Co.'s No. 1 Scarborough, 990 ft. N and 1,650 ft. W of SE cor. Sec. 1, Blk. C-22 ..... Cem. 12½-in. casing 260 ft.; top salt 1,400 ft.; set 8¼-in. casing 2,845 ft.; top pay 2,930 ft.; total depth 3,131 ft.; water; plugged back to 3,100 ft.
Shell Pet. Co.'s No. 1 Leck, 990 ft. S and 1,650 ft. E of NW cor. Sec. 3, Blk. 74 ..... Top lime 2,789 ft.; top pay 3,144 ft.; 800 ft. oil in hole; total depth 3,194 ft.
Shell Pet. Co.'s No. 6 Scarborough, 330 ft. N and W of SE cor. NW SE Sec. 1, Blk. C-22 ..... Drlg. 600 ft.
Skelly Oil Co.'s No. 2 Hendricks-C, 1,320 ft. N and 2,310 ft. W of SE cor. Sec. 10, Blk. B-12 ..... Top lime 2,636 ft.; show oil 3,034 ft.; hole full sulphur water 3,030-39 ft.; total depth 3,055 ft.; flowing 1,000 bbls. fluid, 99 per cent water.
Skelly Oil Co.'s No. 2 Leck, 2,310 ft. N and 330 ft. E SW cor. Sec. 22, Blk. 26 ..... Drlg. 500 ft.
Southern Crude O. P. Co.'s No. 6 Hendricks T-67-3-A, 990 ft. S and 1,650 ft. W of NE cor. Sec. 4, Blk. B-12 ..... Cem. 12½-in. casing 2,245 ft.; cem. 8¼-in. casing 2,664 ft.; top lime 2,612 ft.; top pay 2,790 ft.; total depth 3,023 ft.; flowed 80 bbls. oil plus 75 per cent water.
Southern Crude O. P. Co.'s No. 5 Hendricks T-67-2-D, 990 ft. from W, 2,310 ft. from S, Sec. 28, Blk. 26 ..... Location.
Southern Crude O. P. Co.'s No. 5 Hendricks T-67-F, 330 ft. N and 930 ft. W of SE cor. Sec. 33, Blk. B-5, School Land ..... Top lime 2,711 ft.; cem. 8¼-in. casing 2,784 ft.; top lime 2,711 ft.; top pay 2,745 ft.; flowing 75 bbls. per day, 30 per cent water; total depth 3,009 ft.; preparing to pump; hole full fluid.
Simms Pet. Co.'s No. 2 Sealey, 2,434 ft. S and 990 ft. W of NE cor. Sec. 50, G.M.M.&A. Sur. ..... Rotary rig.
Southern Crude O. P. Co.'s No. 8 Hendricks T-88-C, 2,310 ft. S and 1,650 ft. E of NW cor. Sec. 28, Blk. B-5, School Land ..... Top lime 2,515 ft.; cem. 8¼-in. casing 2,535 ft.; total depth 2,950 ft.; rig turned; top pay 2,685 ft.; flowing by heads.
Southern Crude O. P. Co.'s No. 2 Hendricks T-88-CX, Sec. 21, Blk. 26 ..... Drlg. 892 ft.
Southern Crude O. P. Co.'s No. 3 Hendricks T-88-CX, 2,310 ft. N and 330 ft. W of SE cor. Sec. 21, Blk. 26.. Running 12½-in. casing 505 ft.
Southern Crude O. P. Co.'s No. 6 Hendricks T-88-K, 2,200 ft. S, 1,650 ft. W of NE cor. Sec. 41, Blk. 26.... Cem. 8¼-in. casing 2,662 ft.; rigging up standard tools; drlg. 2,917 ft.; flowing 900 bbls. daily.
Southern Crude O. P. Co.'s No. 7 Hendricks T-88-K, 1,320 ft. S and 1,650 ft. W of NE cor. Sec. 41, Blk. 26 ..... Drlg. 2,090 ft.
Southern Crude O. P. Co.'s No. 32 Hendricks T-88-M, 1,760 ft. S and 990 ft. W of NE cor. Sec. 33, Blk. 26, School Land ..... Drlg. 2,425 ft.
Southern Crude O. P. Co.'s No. 6 Hendricks T-88-N, 1,320 ft. N and W of SE cor. Sec. 28, Blk. 26, School Land ..... Cem. 8¼-in. casing 2,436 ft.; rigging up standard tools.
Southern Crude O. P. Co.'s No. 7 Hendricks T-88-N, 2,320 ft. N and 2,640 ft. W of SE cor. Sec. 28, Blk. 26.. Cem. 8¼-in. casing 2,559 ft.; rigging up standard tools.
Southern Crude O. P. Co.'s No. 3 Hendricks T-88-O, 440 ft. S, 330 ft. W of NE cor. Sec. 28, Blk. 26 ..... Top lime 2,376 ft.; top pay 2,690 ft.; 140 bbls. hourly, 77 per cent water; total depth 2,802 ft.
Southern Crude O. P. Co.'s No. 4 Hendricks T-88-O, 1,320 ft. S and W of NE cor. Sec. 28, Blk. 26 ..... Drlg. 2,456 ft.; rigging up standard tools.
Southern Crude O. P. Co.'s No. 2 Hendricks T-88-P, Sec. 28, Blk. 26 ..... Rigging up rotary.
Southern Crude O. P. Co.'s No. 3 Hendricks T-88-R, 1,320 ft. N and E of SW Sec. 27, Blk. 26 ..... Drlg. 2,389 ft.
Southern Crude O. P. Co.'s No. 7 Hendricks T-89-J, 1,540 ft. from N and 1,320 ft. from E lines Sec. 9, Blk. B-12 ..... Top pay 2,745 ft.; 900 ft. oil in hole; drlg. 2,790 ft.
Southern Crude O. P. Co.'s No. 8 Hendricks T-89-J, 440 ft. N and 330 ft. W of SE cor. Sec. 9, Blk. B-12 ..... Cem. 2,590 ft.
Texas Canadian Oil Co.'s No. 1 Kuhn-Runge, 1,320 ft. N and E of SW cor. Sec. 35, Blk. 46, T.&P.R.R. Sur.. Shut down 4,011 ft.
Tidal Oil Co.'s No. 1 Scarborough, 330 ft. S and E of NW SE SE Sec. 1, Blk. C-22 ..... Rigging up rotary.

KANSAS FIELDS

(Continued from Page 52)

Patton and others' No. 1 Moore, NW cor. SE, Section 33-24-3, is dry and abandoned at 3,413 feet. Empire Oil & Refining Co.'s No. 77 Koogler, NW cor. NE SE, Section 19-26-5, made 100 bbls. from Viola lime at 2,546-2,628 feet. No. 78 Koogler, NE cor. NW SE, Section 19-23-5, is producing 100 bbls. from Viola lime at 2,552-2,637 feet. Phillips Petroleum Co's No. 1 Green, NW cor. SW NW, Section 23-27-5, is dry and abandoned at 3,252 feet. Allison & Fitzwilliams' No. 6 McGinnis, SW cor. NW NW, Section 9-27-6, was completed for 50 bbls. in lime at 3,070-3,134 feet.

Cowley County

Edinfield and others made location for No. 1 Wycoff, C SW SE, Section 8-34-3. Roth & Faurot's No. 1 Johns, NE cor. SW NE, Section 30-31-3, is dry and abandoned at 3,429 feet. J. A. Hull's No. 19 Kukuk, SE cor. NE NE, Section 24-32-4, has been completed for 120 bbls. in sand at 2,960-3,040 feet. Hartman & Skaer's No. 1 Shane, SW cor. NW, Section 13-33-3, is a dry hole at 3,775 feet.

Kentucky Nitrogen & Oxygen Co.'s No. 1 Day, CEL SW SW, Section 7-33-7, has been completed for 700,000 feet of helium gas, sand at 550-56 feet. Shawver and others' No. 1 Shultz, SW cor. NW NW, Section 16-34-3, made a 20-bbl. well in chat at 3,334-36 feet. The Prairie Oil & Gas Co.'s No. 4 Graham, NW cor. SW SW, Section 10-32-4, made 90 bbls. from 3,297 feet.

Ellis County

Davis, Hazlett and others' No. 2 Weiland, NW cor. NE NE, Section 1-13-16w, is making 95 bbls. from sand at 2,992-3,005 feet.

Ellsworth County

The Texas Company made location for No. 1 Sherman, NE cor. SW, Section 16-17-6w.

Greenwood County

Aladin Petroleum Co.'s No. 1 Kirk, NE cor. SE SE, Section 10-25-8, is drilling at 2,313 feet. Roth & Faurot's No. 1-C Welsh, NE cor. SE SE, Section 13-25-8, is spudding.

Harvey County

Empire Oil & Refining Co.'s No. 1 Tangeman, SW cor. NE NE, Section 19-22-1, is dry and abandoned at 3,556 feet.

Lyons County

Sheedy and others' No. 2 Hughes, NW cor. SW, Section 19-21-10, is a machine.

Marion County

Darby Petroleum Co. is erecting the rig for No. 4 Nickle, SW cor. NE SE, Section 12-19-2. No. 3 Nickle, SE cor. NE SE, Section 12-19-2, was completed for 260 bbls. in Viola lime at 2,805-26 feet. Tidal Oil Co.'s No. 1 Ewert, NW cor. SW SW, Section 7-19-3, made 225 bbls. from Viola lime at 2,841-60 feet.

McPherson County

Marland Oil Co.'s No. 1 Wilkening, C SW SW, Section 9-21-1w, has been abandoned at 3,584 feet.

Osborne County

Phillips Petroleum Co. made location for No. 1 Greve, NW cor. SE NE, Section 6-7-12w.

Sedgwick County

Mars Oil Co. made location for No. 1 Miller, SE cor. SW, Section 2-26-2. Shell Petroleum Corp. made location for No. 1 Borg, NW cor. NE SW, Section 14-26-2. W. R. Ramsey and others moved the rig in for No. 1 Mason, SE cor. SW SW, Section 15-26-2, Lot 4, Block 11, Greenwich Townsite. Vickers Petroleum Co. has the rig up for No. 1 Devore, SE cor. NE NE, Section 16-26-2.

Bu-Vi-Bar Petroleum Corp. and others' No. 3 T. Goodrich, SW cor. SE, Section 6-26-1, made 325 bbls. from sand at 3,369-76 feet. No. 6 T. Goodrich, NW cor. SE, Section 6-26-1, made 25 bbls. from sand at 3,378-82 feet. Vickers Petroleum Co.'s No. 3 Nissen, NW cor. SW NE SW, Section 6-26-1, was completed for 525 bbls. in sand at 3,380-83 feet. Shell Petroleum Corp.'s No. 1 Lygrisse, SE cor. NE, Section 15-26-2, was completed for 2,118 bbls. Lewis and others' No. 1 Taylor, NW cor. NE, Section 23-27-2, is dry and abandoned at 3,336 feet.

Sherman County

Hannsen and others' No. 1 Murray, NE cor. SW NW, Section 22-7-40w, has been abandoned at 3,150 feet.

Stevens County

Trees Oil Co.'s No. 1 Grundy, SW cor. NE SW, Section 3-35-38w, has been abandoned at 500 feet.

Sedgwick Production

The production by companies and leases in the Sedgwick County area for May 18 is shown by the following table:

Company, farm—	S.T.R.	Wells	Bbls.
Aladdin:			
Bennington	6-26-1	1	761
Allison & Fitzwilliams:			
Kelly	6-26-1	1	90
Barnsdall:			
Samuel	24-25-1	1	off
Bu-Vi-Bar et al:			
Branch	6-26-1	2	946
Bright (A)	6-26-1	2	312
Bright (B)	6-26-1	1	885
Byers	7-26-1	1	218
Emrich	6-26-1	2	1,057
T. Goodrich	6-26-1	5	518
Lantz	12-26-1w	1	625
Lyons	7-26-1e	3	2,817
Roll	7-26-1e	1	518
Shawver	7-26-1e	4	4,641
Wright	12-26-1w	3	3,786
Davis-Skelly:			
Wilson	1-26-1w	5	320
Derby:			
Bowling	6-26-1	1	279
Gorman	6-26-1	1	731
Dickey et al:			
Robbins	21-28-1	1	654
Marland:			
Goodrich	16-25-1	2	1,780
Mary Jane:			
Fitch	6-26-1	2	1,055
Montour:			
Lavender	6-26-1	2	1,641
Patton & Wenz:			
Swenson	6-26-2	1	off
Phillips:			
Dufford	1-26-1w	2	362
Piefer	6-26-1e	1	173
Prairie:			
Cross	27-25-1w	1	100
Swyser	36-25-1w	1	385
Pyle & Sutter:			
Caldwell	6-26-1	2	1,010
Reynolds & Hays:			
Roll	7-26-1	1	225
Shell:			
Lygrisse	15-26-2	1	1,870
Steans & Streeter:			
Roll	7-26-1	1	680
Tidal:			
Scherger	6-26-1	2	210
Vickers:			
Nessen	6-26-1	3	885
White Eagle:			
Baylor	6-26-1	1	90
Bu-Vi-Bar et al:			
Carr	1-26-1w	1	300
Connell:			
Cross	27-25-1w	1	12
		61	30,336

The production of the Gypsy Oil Co.'s Wilcox sand well, No. 1 Williams, NW cor. SE SW, Section 16-35-3w, Sumner County, was 1,550 bbls. on the morning gauge of May 20. The production has been very steady from this well for the past week.

FORM COASTAL DIVISION

SHREVEPORT, La., May 18.—Increasing activity in the Gulf Coast section of Louisiana has led the Louisiana-Arkansas division of the Mid-Continent Oil & Gas Association to initiate a chapter of the organization in Lake Charles similar to the branch in El Dorado for the benefit of Arkansas operators, refiners, etc. T. J. O'Sullivan, assistant secretary of the division, in charge of membership, has been spending most of his time in Lake Charles recently furthering the project.

A meeting of operators and others preliminary to such organization was held recently in Lake Charles at which most of the companies and individuals operating in the coastal fields were represented. Talks on how the Mid-Continent Association serves the industry were made by L. L. Prock of the Ohio Oil Co.; F. E. Wilkerson, Louisiana Oil Refining Corp.; F. Ray McGrew, Standard Pipe Line Co., and others.

TEXAS P. L. RUNS

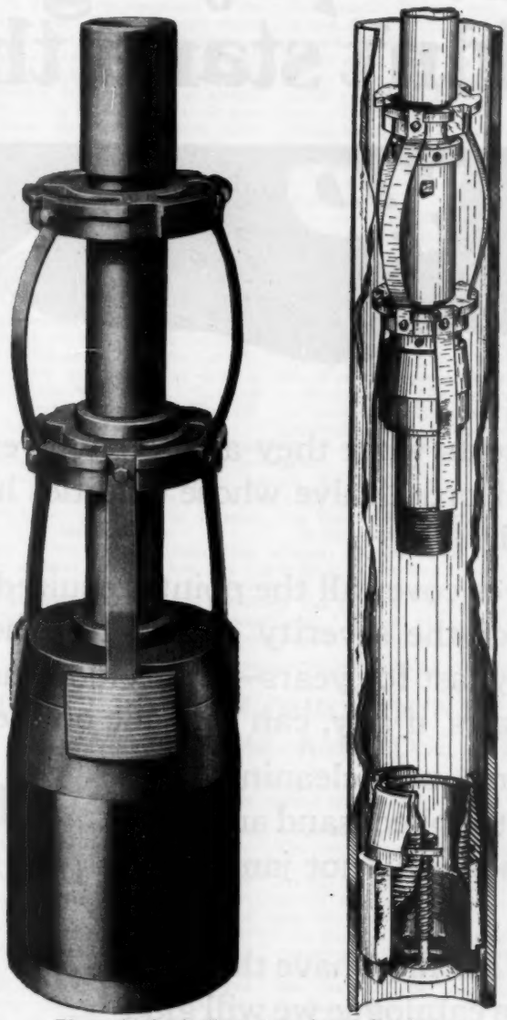
The Texas Pipe Line Co. of Oklahoma's April report shows crude runs of 922,991.80 bbls.; daily average 30,766 bbls.; shipments 1,146,592.31 bbls.; daily average 38,220 bbls.; stocks 8,404,600 bbls. The same company's stocks at the close of March were 8,349,987 bbls.

The *BAKER* Cement Retainer Model B Puts the Cement Where You Want it....and Holds it There

The back pressure valve in the bottom of the Baker Cement Retainer holds the cement under pressure after it is placed. Gas or a head of water cannot agitate cement and keep it from setting.

Use the Baker Cement Retainer for cementing off bottom water. It puts the cement exactly where you want it and holds it there under pressure. When cement is placed, break the tubing joint at top of retainer, raise tubing two feet and circulate the cement out of the tubing and casing.

For re-cementing after the original job has failed the Baker Cement Retainer has no equal. The cement can be forced up around the shoe and out into the formation. If the original job channeled behind the casing, the pressure which can be put on will force the cement into the channels and allow the new cement to bond with the first job.



The right hand illustration shows the Cement Retainer in the casing after the cement has been placed and the tubing raised ready to circulate the slurry out of the tubing and casing.

For cementing a water leak in the casing. Set a plug or bridge just below hole in casing. Run in and set retainer and force cement out through hole behind and around the casing. Has been found very efficient for this job.

No cement to drill out above the Retainer. No chance of any cement setting in the tubing. All cement is quickly circulated out of the tubing and the casing above the Retainer.

The only part of the retainer that is left in the hole to drill out is the valve, seat and packing rubber. The right hand line drawing shows the Retainer after the cement has been placed and the tubing raised ready to circulate the cement slurry out of the casing and tubing. No cement to drill out above the Retainer.

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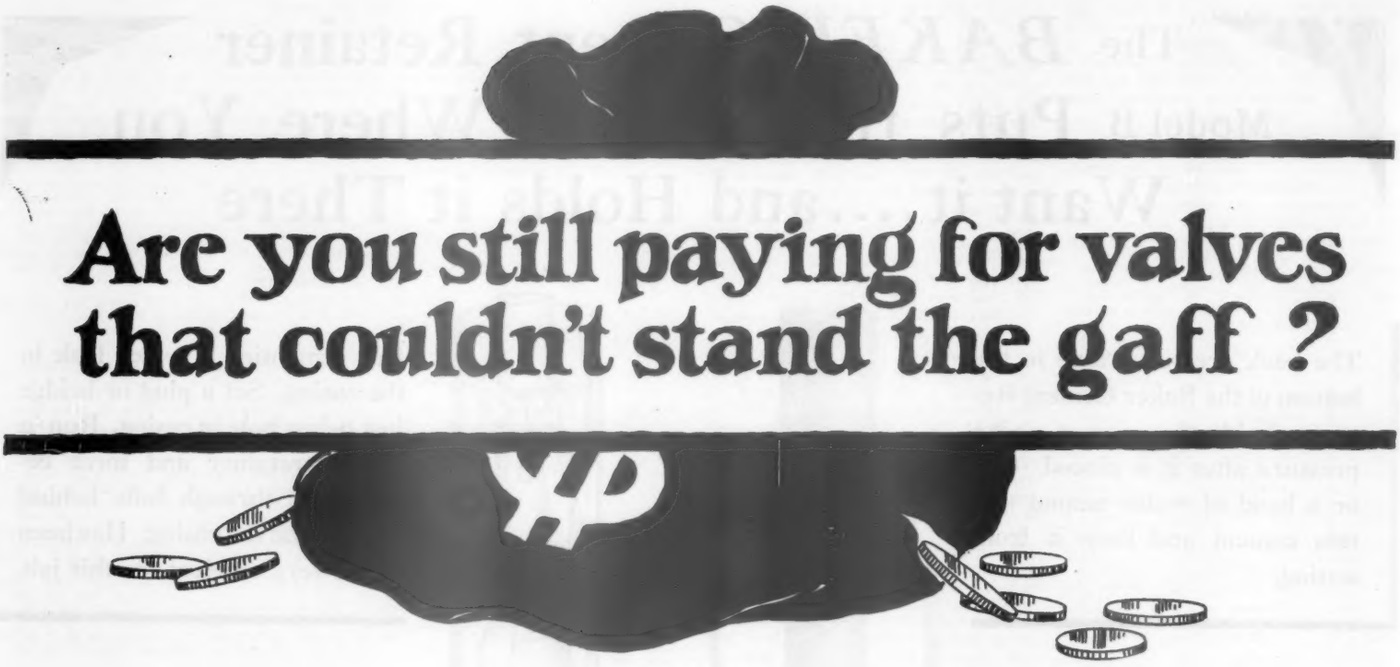

Are you still paying for valves that couldn't stand the gaff ?

With production costs what they are today, even the largest operators can ill-afford a valve whose qualities have not been proven in the field.

Darling Gate Valves cover all the points required for a perfect valve, regardless of the severity of service. They open and close readily. They last for years—and seldom need repairing or replacing. Repairs, if any, can be made on the spot.

Why? Self-aligning, self-cleaning discs. No pockets or ribs to collect sand and scale. Simple and compact—will not jam or disassemble.

"How" and "Why" Darlings have this reputation is shown in a catalogue we will gladly mail you on request.

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DARLING
GATE VALVES

Southeast Ohio Gets Fair Producers

Geary District, Roane County, West Virginia, Furnishing Most Average Size Completions. Drilling Down Old Wells Feature

By D. S. Wakenight
Staff Correspondent, Eastern Fields

PITTSBURGH, Pa., May 20.—Four and one-half months of the year have passed and no new pools have been discovered in the Eastern fields and neither has the production been materially increased. Producers are leaving nothing undone to increase their production. The old fields are being gone over and new wells drilled where there is still room. This will prove a temporary benefit for the new wells will draw their production from the old and more speedily impoverish the producing formation. Very light pumpers are the best that can be hoped for.

Drilling down old wells that have dropped to where they are no longer profitable producers is still very much of a feature in the West Virginia fields. In these fields, and southwest Pennsylvania and southeast Ohio gas and air pressure is a feature and brings satisfactory results in some sections.

Wildcatting is a hazardous business at all times and is doubly so in the Eastern fields. So much territory has been tested in the past there is no longer room for any large fields. The gas companies are very active in the lower West Virginia counties and may uncover a new pool of oil. For some years the gas companies have made all of the important discoveries. When the fields now under development have been defined they may be induced to look for others.

SOUTHEAST OHIO

The best producer completed during the week was R. C. Miller & Co.'s second test on the Lewis Hughes farm, in the NE Section 21, Harrison Township, Perry County, Ohio. The well produced 130 bbls. the first 24 hours after shot in the Clinton sand. In the SE Section 15, Washington Township, Hocking County, the Hope Construction & Refining Co. completed No. 4 on the Willoughby Huggins farm. It produced 45 bbls. the first 24 hours after shot. In the southwest quarter of the same township, the Preston Oil Co.'s No. 4 on the Cynthia A. Marks farm No. 2 is a duster in the Clinton sand.

In the NW Section 5, Ward Township, Hocking County, the Murray City Oil & Gas Co. has a 20-bbl. producer at No. 10 on the N. M. Akers heirs' farm. In Section 3, Liberty Township, Washington County, C. E. Smith & Co. have a 2-bbl. pumper in the Berea grit at No. 4 on the C. E. Smith farm. In the town lot in Alliance, Stark County, the Alliance Machine Co. has completed in the Berea grit a test on the William H. Purcell lot. It is a 2-bbl. pumper. In Liberty Township, Washington County, the J. B. Decker Oil Co. and others are drilling on the John Lee Hall farm.

In Section 4, Trimble Township, Athens County, the Palos Oil & Gas Co. has completed a test on the George W. McDonald farm. It is a gasser good for 200,000 feet in the Clinton sand. In Section 11, Noble Township, Holmes County, the Arkansas Fuel Oil Co. has completed in the same formation No. 5 on the William Miller farm. It is a gasser good for 500,000 feet.

Hocking County

In the SW Section 24, Washington Township, Hocking County, the Gordon Oil Co. completed and shot in the Clinton sand No. 8 on the James Brimmer farm. It produced 11 bbls. the first 24 hours. In Section 25, Aurelius Township, Washington County, Jerry Buckley is due in the sand at a second test on the B. N. and Audrey Hupp farm. In Newport Township, R. H. Warden and others are due in the sand on the Michael Edwards farm. In the same township, Frank Hays & Co. have a rig completed on the Frank Hays farm. John Grau and others are drilling on the Henry Stemhoff farm.

In Washington County, Aurelius Township, Elmer Wickens has completed in the Macksburg 500-foot sand a second test on the Henry Wickens farm. It produced 7 bbls. the first 24 hours after shot. In Section 23, Grandview Township, the Hill Top Oil Co. has completed No. 5 on the Ollie M. Cochran farm. It is a gasser good for 250,000 feet and spraying a little oil.

In Lawrence Township, Shay, McMullin & Co. are drilling on the William Riggs farm. In Section 4, same township, the J. B. Braden Oil Co. and others are drilling on the John L. Hall farm. In Liberty Township, O. C. Smith & Co. are drilling on the O. C. Smith farm. In Springfield Township, Jefferson County, Brown, Vorhees and others are drilling on the Dorrence heirs' farm. In Fox Township, Carroll County, the Ben Oil Co. is drilling on the Zora Neil farm.

In the NW Section 11, Washington Township, Hocking County, the Prestoncompleted and shot in the same Oil Co. formation a second test on the Huggins farm. It is a 9-bbl. pumper.

Meigs County

Meigs County is now completing a number of light pumpers and has considerable new work starting. In Sutton Township, B. M. Tyree has completed No. 3 on the Hannah M. Capehartfarm. It is a 3-bbl. pumper in the Berea grit. In the northeast quarter of the same township, A. Tyree and others have a second test on the New Pittsburgh Coal Co.'s tract. It is a very light pumper in the Berea grit. In Lot 282, Sutton Township, B. M. Tyree has completed in the same formation a second test on the William R. Lott farm. It is estimated good for 6 bbls. a day. In Salisbury Township, Frank Leofheit and others have started to drill on the C. J. Greenber farm. In the southern part of Lot 282, Sutton Township, the Preston Oil Co. has started to drill on the Robert Crew farm.

In the NW Section 2, Rush Creek Township, Fairfield County, Merl Myers has completed a test on the J. J. Johnston farm. Twelve barrels were swabbed from the well the first 24 hours after shot in the Clinton sand.

Guernsey County

In Section 15, Jackson Township, Guernsey County, the Preston Oil Co.'s No. 3 on the Charles Wigginton farm is a duster in the Niagara lime formation. In Section 10, Westland Township, the Cambridge Glass Co. has completed a test on the Alfred A. Kerr farm. It is a fair gasser. In Jackson Township, Section 16, Dr. J. E. Patton and others have location for a second test on the Vincent Kawa farm.

In Section 4, Pike Township, Coshocton County, the Ohio Fuel Oil & Gas Co. is drilling on the Roy Rine farm. In Section 19, same township, the Leonard Oil & Gas Co. is drilling on the Levi Norris farm. In Lot 11, Hanover Township, Licking County, the Edward H. Everett Co. is drilling a second test on the Laura A. Shipley farm.

WEST VIRGINIA

On Walnut Creek, Elk district, Kanawha County, the Virginian Gasoline & Oil Co. has completed in the Squaw sand No. 18 on the J. O. Brown farm. It is showing for a 10-bbl. pumper. In Big Sandy district, S. H. Hall trustee has completed in the same formation a second test on the L. M. Newhause farm. It is a 5-bbl. pumper. In the same district, the Brawley Oil & Gas Co.'s test on the Frank Rose farm is a gasser in the Squaw sand. The Buff Lick Oil & Gas Co. is drilling on the Rebecca J. Young farm.

The new development in Ravenwood district, Jackson County, is not coming up to what was expected of it when the first few wells were completed and came in good producers. Now they are light pumpers or dry holes. On Hartley Run of Big Sandy Creek, the Heck Oil Co. has completed in the Berea grit a second test on the John Hartley farm. It is a duster, 650 feet west of No. 3 on the George Kuhl estate.

Fair Gasser in Ritchie County

In Clay district, Ritchie County, the Garner Oil & Gas Co. has completed a test on the Garner heirs' farm. It is a gasser good for 1,000,000 feet in the Big Injun sand. In Harvey district, Mingo County, E. J. Evens has drilled deeper his test on the J. D. McNamars farm. It is a light gasser in the Maxon sand. It was formerly a light pumper in the same formation.

In DeKalb district, Gilmer County, the Ellis Oil & Gas Co. is drilling to the lower sands its second test on the M. R. Ellis farm. It was formerly a light producer in the Maxon sand. In Scott district, Boone County, the United Fuel Gas Co.'s No. 1,925 on the Horse Creek Land & Mining Co.'s tract is a light gasser.

In Meade district, Tyler County, the Hope Natural Gas Co. has completed in all sands No. 7,256 on the O. C. Burch farm. It is a duster. In Center district, Calhoun County, W. H. Bickel completed in the Big Injun sand No. 3 J. M. Shanks and a test on the B. M. Marshall farm. Both are gassers.

In Otter district, Braxton County, the United Gas Co. has drilled its test on the Israel Engle farm through the Fifth sand. It is dry and abandoned. In DeKalb district, Gilmer County, the Philadelphia Oil Co. gave its No. 12 on the E. Weaver heirs' farm a shot and increased its production from 6 to 20 bbls. a day. In Union district, Wood County, Strain Brothers have completed a test on the B. C. Strain farm. It is showing for a 5-bbl. pumper in the Berea grit.

Located 1,200 feet southwest of No. 2 on the James Shanks farm, W. H. Bickel has completed No. 3 on the same farm. It is a gasser in the Big Injun sand good for 500,000 feet.

Roane County Doing Well

In Geary district, Roane County, the South Penn Oil Co. has completed in the Big Injun sand No. 93 on the O. D. Stockey farm. It is estimated good for 15 bbls. a day. In the same district the same company has rigs completed for Nos. 96 and 97 on the same property. This district is furnishing more producers of an average size than any other in West Virginia.

In Union District, Harrison County, the Reserve Gas Co. is drilling its test on the Nancy Perrine farm from the Gordon to the Speechly sand. In Ellsworth district, Tyler County, J. H. Pentz

(Continued on Page 210)

BARTLETT POOL IN OHIO COUNTY MAY RIVAL AMBROSE-WELLER

By Whit
Staff Correspondent, Central West Fields

OWENSBORO, Ky., May 20.—The Bartlett Pool, near Taffy, in Ohio County, is proving up a rich pool, like the Ambrose-Weller Pool, in the same county. The latest important well is that drilled by the Ohio Oil Co., No. 4 on the James A. Kirk, adjoining the Bartlett lease, which is credited with an initial production of 740 bbls. in 24 hours from a depth of 580 feet. The well flowed without being shot and is reported holding at 600 bbls. This well, along with other wells in the pool, necessitated the doubling of the gathering line from the pool to the main line not far distant. This is the largest well completed in Kentucky during the past several months. This lease contains 200 acres and has had two dry holes drilled on it and two good producers, and the two dry holes on two sides of the lease indicate there may be a strip of rich oil between the dusters, as the other producer showed 200 bbls. initial when drilled in a short time ago. Much new work is under way in both Ohio and Daviess Counties and now that the weather has settled to a large extent additional activity will be brought about, as all leaseholders are anxious to test their holdings and get oil running into the pipe lines.

The development for natural gas is making great headway in the Tri-County area of the western division. It is announced that the Louisville Gas & Electric Co., owner of the public utilities in Louisville for distribution of gas and electricity, had 12 of its representatives in Owensboro territory, buying leases on known gas territories in the Owensboro Field, making arrangements for drilling numerous leases it has already obtained, preparing to lay pipe lines to Louisville. The company, according to advices, is offering 12 cents per 1,000 feet for natural gas in the field, and it is also reported that other companies that want gas for transportation of natural gas from the field will be compelled to pay a minimum of 12 cents per 1,000 feet. Considerable gas had been contracted for before the Louisville company came into the field, but none of the contract prices has been revealed. Some of the owners of gas wells in the Owensboro-Hartford area ask the same price as paid for gas in the eastern part of Kentucky, which is 15 cents per 1,000 feet at the wells. It is further rumored that the Louisville company will put several drilling outfits in the Owensboro-Hartford Fields. No large gas wells have been developed so far, although some will run 1,000,000 feet, while the majority are only good for half that amount.

Another interesting test looms up like a connection between the Daviess County Field and the Sebree Field in Webster County. This well is reported to be on the Brown lease, half a mile east of Beech Grove, in the northwestern part of McLean County, almost directly east of the development near Sebree, in Webster County, almost directly west of the Utica Pool in Daviess County and several miles southwest of the well recently brought in by Miller & Damron on the Hamilton farm, near St. Joseph, that was reported showing for around 75 bbls. The Beech Grove well got its oil at 1,400 feet. Particulars of the well were vague as is usual when a new section is opened up, but sufficient information came to war-

(Continued on Page 144)

Trumbull County Wildcat Watched

Feature of Operations in Central Ohio. Perry County, Indiana, Test Going to the McCloskey Sand If Necessary

By Whit
Staff Correspondent, Central West Fields

FINDLAY, Ohio, May 20.—During the past month much lease work was done in various parts of the Lima Field in hopes of finding commercial production on many of the abandoned leases of the early days and others are taking leases along the outer edges of the older development with hope of finding extensions. Unknown parties are reported to be drilling a wildcat on a large block south of Bellevue, said to be around 2,000 acres, on the Thomas Boling 80 acres in Thompson Township, Huron County. Henry Specht of Brander, Ohio, is reported to be interested. Many years ago a test was drilled in Thompson Township that had a showing of oil, but at that time big wells were being found in the Trenton Rock area and the hole was plugged, as nothing but good wells were produced in the old field when oil was bringing around 35 to 37 cents a barrel. On many occasions wells in the old Lima Field that showed 50 bbls. would be pulled out and abandoned, as with a low price the operator would not figure on wells of that size being worth the tubing and connecting to lease tanks. At present a 5-bbl. producer is looked upon as well worth the expenditure. There is still an abundance of undeveloped territory in and adjacent to the old Trenton Rock Fields.

CENTRAL OHIO

A wildcat venture being watched with much interest is being made by John Arthur, operator of Cleveland, Ohio, on the Sibert F. Rush farm, Section 2, Mecca Township, Trumbull County, several miles north of Warren, the county seat. This area had some excitement many years ago but it was never followed up as it was about the time Col. Drake drilled his well on Oil Creek, Pa. Back in 1859-1860 a heavy oil was discovered at the little hamlet of Mecca and this fact has been overlooked. Mr. Arthur will drill a deep test in the immediate vicinity of where the shallow heavy Mecca crude was discovered in hope of finding a deeper pay sand, and will go at least 4,000 feet or more on the West Mecca test, unless a commercial producer is found. It is estimated that more than 60,000 acres have recently been taken under lease in Trumbull County by John Arthur, Morse Oil Co., Ohio Fuel Gas Co., East Ohio Gas Co., Hulse & Kundtz, J. H. Harmon, F. A. Brendall & Co. and many other operating concerns, and it is believed the old forgotten territory will get a good testing. The Rush well is reported to have shown an oil rainbow at less than 100 feet, but not enough to make a shallow producer.

The only oil well of note in the Central Ohio fields since the last review was found in No. 5 on the Hoover farm, Jackson Township, Muskingum County, while a few good scattered gas wells were brought in. The week shows a total of 24 completions, 6 producers with an initial production of 141 bbls., 6 dry holes and 12 gas wells. New work shows 34 locations staked out and 20 new wells started drilling, a total increase in new development of 54.

Ashland County

In Ashland County, the Logan Gas Co. brought in a fairly good gas well in No. 2-3082 on the John Obrecht farm, Section 36, Vermillion Township. Same company made a location for No. 1-3103 on the C. W. Long, Section 14, Greene Township. Same company is drilling No. 2-3098 on the Mary V. Sharrick, Section 21, Orange Township; also drilling a second test on the John E. Finley, Section 9, Mohican Township. Ohio Fuel Gas Co. drilled in a good gas well in No. 1-3474 on the Royal J. Welch, Section 12, Orange Township, and is drilling No. 1-3518 on the Peter Hiller, Section 25. Same company made locations for three wells in Greene Township, in No. 1-3584 on the J. F. Jones, Section 20; No. 2-3583 on the C. V. Hassinger, Section 8, and No. 1-3585 on the D. C. Baker, Section 3. Same company made a location for No 1-3590 on the D. G. Chandler, Section 4, Lake Township. Curtis and others are starting a test on the A. C. Metcalf, Section 22, same township. Davidson and others, in the same township, drilled a good gas well on the D. B. Chesrown farm, Section 3, and Robinson and others' No. 1 Charles Moores farm, Section 15, Lake Township, is credited with 4 bbls. initial production.

In Medina County, Lafayette Township, the Logan Gas Co. has an average gas well in No. 2-3083 on the A. J. House, Section 6. Same company made a location for No. 1-3105 on the Frank Torma farm, Section 1, and the Ohio Fuel Gas Co. made a location for No. 1-3581 on the Allen S. Arnold farm, lots 7 and 12, Lafayette Township, also for No. 2-3580 on the Leo A. Goldner, Section 33. Same company is drilling No. 1-3519 on the Adam Leister farm, Section 8, Medina Township.

In Lorain County, Grafton Township, Hulse & Kundtz's second test on the Joe Degnan, Lot 90, is a duster. In Eaton Township, the Ohio Fuel Gas Co. made a location for No. 1-3586 on the Johanna Weily, Section 17.

In Wayne County, Chester Township, the Ohio Fuel Gas Co. found a dry hole in No. 1-3432 on the Earl E. Weaver, Section 7, and is drilling No. 1-3534 on the Martin A. Ruff, Section 18, Congress Township.

In Holmes County, Richland Township, the East Ohio Gas Co. has a good gas well in No. 3 on the H. C. Roby, Section 14, and the Ohio Fuel Gas Co. made a location for No. 1-3589 on the White & Williams, Section 24. The East Ohio Gas Co. is drilling a second test on the C. E. Schlarb, Lot 19, Hardy Township.

Cuyahoga County

In Cuyahoga County, Breck Township, Hulse & Kundtz are drilling on the Walsh farm, Lot 65.

Ashtabula County comes to the front again with another excellent gas well drilled by Schaffer Brothers on the Harry White farm, Lot 48, Conneaut Township, with a volume of 2,500,000 feet from the Austinburg sand. Same parties are drilling No. 3 John R. Ring, same lot, and No. 1 on the Mary E. Mace, Lot 47.

In Knox County, Brown Township, the Ohio Fuel Gas Co. made a location for No. 1-3581 on the G. H. Kayler, Section 4, also a location for No. 1-3588 on the Goldie Robeson, Section 16, Jefferson Township, same county.

In Coshocton County, Perry Township, the Preston Oil Co. is drilling No. 2-1298 on the J. J. Wilson, Section 14.

Summitt County failed to report any completions. The East Ohio Gas Co. is drilling on the A. F. Smith, Section 25, Franklin Township. In Greene Township, F. A. Brendall and others are drilling deeper to the Clinton lime, in No. 1 on the Hubert Boettler, Section 17, and drilling on the Ami Gougler, Section 10.

In Licking County, Perry Township, the Settles Oil Co.'s No. 1 Nellie Smith, Section 17, pumped 2 bbls. at from 604 to 612 feet. Sterl Brown is drilling a second test on the Ethel Frost, Section 14, and Hulse & Kundtz are drilling No. 9 Joseph Chaney, Section 1. In Hanover Township, the Wehrle Gas Co. is starting a test on the Solomon Weaver farm.

In Athens County, Ames Township, the Ohio Fuel Gas Co. has a fair gas well in No. 3-3513 on the Euriah Brooks, Section 3, and made locations for No. 3-3542 on the B. M. Carpenter, Fractional Section 2, and for No. 1-3562 on the O. E. Woolley, Section 5 and 6, same township. The Brooks well got its gas in the lower Berea sand at from 1,412 to 1,432 feet; total depth 1,440 feet. Same company's No. 11-3484 on the Black Diamond Coal Co.'s property, Section 23, Berne Township, is a light gas well in the Maxon sand at from 985 to 1,023 feet, and made a location for No. 1-3538 on the George A. Harris, Fractional Section 5, same township.

Meigs County

In Meigs County, Fallsbury Township, Simon Lebow and others' second test on the Raymond Krauter, Section 20, Sutton Township, pumped 4 bbls. from the upper Berea sand at from 1,833 to 1,845 feet; total depth, 1,847 feet. Tyree and others are drilling No. 8 William Carnahan, Section 11, same township. Frick & Barnaby's No. 5 Wesley Genheimer, Section 21, Chester Township, pumped 5 bbls. from the upper Berea at from 1,870 to 1,888 feet; total depth 1,889 feet. In Salisbury Township, the Big Six Oil & Gas Co.'s test on the Walter Carmen, Section 24, is good for only 1 barrel in the lower Berea at from 1,701 to 1,715 feet. F. Leifhart is drilling No. 2 C. G. Greenlee, Section 36, same township. In Bedford Township the Ohio Fuel Gas Co. made locations for No. 1-3577 on the Francis Winget, Section 27, and No. 1-3578 on the Charles H. Wilson, Section 33.

In Jackson County, the Ohio Fuel Co. brought in a nice gas well in No. 1-3475 on the Tolma E. Wright, Section 14, Franklin Township, in the Clinton formation at from 2,638 to 2,654 feet; total depth 2,656 feet. Same company made three locations in the same township, No. 2-3564 on the Pete A. Ratcliff, Section 2; No. 1-3570 on the W. O. B. Cline, Section 23, and No. 1-3571 on the E. Stiffles, Section 2. In Washington Township, the Ohio Fuel Gas Co. made four locations, No. 2-3565 on the I. J. McMillen, Section 23; No. 1-3566 on the Martha J. McKimis, Section 25; No. 7-3567 on the L. H. Poland, Sections 8 and 9, and No. 1-3568 on the William E. Murphy, Section 16. In Coal Township, same county, same company is drilling No. 1-3441 on the Lucy A. Hawks, Section 12, and made two new locations in the same township for No. 1-3569 Thomas Fox, Section 10, and for No. 1 W. L. McGhee, same section.

Vinton County

In Vinton County, Elk Township, J. A. Robinson and others' test on the Christ Herrold, Section 3, is an excellent gas well in the Clinton at from 2,828 to 2,845 feet; total depth 2,847 feet. In Vinton Township, Townsend and others got a dry hole on the Elmer and Ida Petty, Section 6, in the Berea at from 1,278 to 1,313 feet; total depth 1,350 feet. Ohio Fuel Gas Co. made a location for No. 1-3574 on the John Clay, Section 36, Eagle Township, same county.

In Lawrence County, Symmes Township, Ohio Fuel Gas Co.'s No. 1-3390 on the H. L. Handley, Section 15, is a dry hole in the Clinton sand from 3,053 to 3,065 feet; then went to the Medina at 3,101 feet. In Elizabeth Township, same county, the Southern Ohio Gas & Fuel Co.'s test on the William Jeffries, Section 30, is in the Berea at from 985 to 1,087 feet; total depth, 1,210 feet.

In Gallia County, Addison Township, the Penn Oil & Gas Co. has a light gas well on the Kate McKenzie, Section 20, in the lower Berea at from 1,795 to 1,815 feet; total depth 1,917 feet. Gordon Oil Co. lost drilling tools in a test on the Adam Kiser, Section 15, same township, which delays its completion.

Guernsey County

In Guernsey County, Wheeling Township, the Logan Gas Co. made a location for No. 2-2851 on the W. T. Booth, Section 10, and abandoned the location recently made on the Loren C. Stocker, Section 9. George Jewell and others are drilling No. 1 Thomas E. Henderson, Section 28, Millwood Township. Ohio Fuel Gas Co. made a location on the William H. Sheeley, Section 10, Knox Township, also for No. 1 on the W. J. Nickle, Section 36, Spencer Township.

In Morgan County, Marion Township, the Ohio Fuel Gas Co.'s No. 4-3471 on the T. J. Newburn, Section 23, is a fairly good gas well in the lower Berea from 1,671 to 1,697; total depth 1,700 feet. Same company's No. 1-3481 on the Elmer Edgerton, Section 16, was dry in the same formation from 1,510 to 1,537 feet; total depth 1,541 feet. Same company made a location for No. 1-3540 on the A. M. Hummel, Section 30. Kemrow Co. got a 50,000-foot gas well in No. 9 Edmond Parker farm, Fractional Section 4, and disposed of the well to the land owner, who will utilize it for heat and light at his home. Same company drilled a dry hole in No. 3 L. A. Boyd, Section 36, in the Berea from 1,540 to 1,561 feet; total depth 1,564 feet. In Penn Township, the Dover Oil Co. got a very light gas well in No. 16 on the George B. Dugan farm, Section 35, in the lower Berea at from 1,614 to 1,632 feet. Henning Brothers have a light gas well in No. 17 on the C. J. Kinnard, Section 2, in the Berea from 1,608 to 1,630 feet. The Ohio Fuel Gas Co. made a location on the Grant Coulson, Section 2, same township. In Marion Township, Choquill and others are drilling deeper their No. 4 on the George Johnson farm.

Belmont County

In Belmont County, Somerset Township, W. C. McBride, Inc., drilled a small gas well on the J. N. and E. Kirkbride, Section 1, in the Injun sand from 1,317 to 1,347 feet; total depth 1,371 feet, and Gilbert Howell and others found a duster on the C. J. and Mary E. Huntsman, Section 25, in the Berea from 1,799 to 1,800 feet; total depth 1,850 feet. The Preston Oil Co. is drilling No. 8-1311 on the S. M. Henderson, Section 2, Wheeling Township. Frank Stranges and others made a location for No. 4 Rehn-Overbaugh property, Section 34, Richland Township, same county.

In Sutton Township, Meigs County, Tyree and others' No. 8 William Carnahan, Section 11, is reported good for 20 bbls.

The Logan Gas Co. is drilling No. 1-3087 on the S. E. Seltzer, Section 13, Chester Township, Wayne County, in the Wooster Field.

In Marion Township, Morgan County, Charles Woodyard's No. 8 on the Woodyard farm, Section 24, is a 1-bbl. pumper

(Continued on Page 203)

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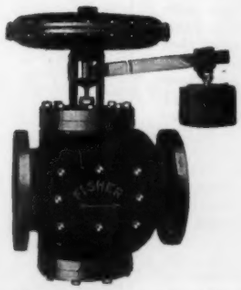

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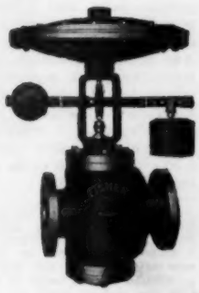


Oil Fields of Persia and Mesopotamia

Graphic Description of Journey of Inspection by American Geologist. Living and Working Conditions

By Frederick G. Clapp*

The oil district of Persia and Mesopotamia consists of a belt perhaps 150 miles wide which extends southeast for 600 to 1,000 miles from near Mosul in northern Iraq to some unknown termination in southern Persia. The localities of commercial production developed to date in this belt are the Baba-gurgur Field and its extensions near Kerkuk 80 miles southeast of Mosul, the Naft-khaneh Field 25 miles south of Khanaqin on the Iraqi-Persian frontier, the Masjid-i-Suleiman Field 54 miles by air line or 73 by road northeast of Ahwaz and the newly-discovered Haft-qel Field, 50 miles directly east of Ahwaz. Although some testing is being done both by the Anglo-Persian Oil Co. in Persia and by the Khanaqin Oil Co. and Turkish Petroleum Co. in Iraq, no other areas of commercial importance had been opened (at the time of my visit in the spring of 1928) in this belt of tremendous potentialities. By far the most productive field to date is Masjid-i-Suleiman, which has yielded all of the oil exported from Persia to date, amounting to over 200,000,000 bbls. at the end of 1927.

Welcome to Fields

Bushire is situated beyond the southern extremity of the area in which drilling operations are now being conducted, and my route lay northward through the various "test areas" of the Anglo-Persian Oil Co. Accustomed to shifting for myself in a strange land and being accompanied by my cook and plenty of secretaries, chauffeurs and servants to enable me to camp and work anywhere in the

Custom house in center of Naft-khaneh Field, a cause of much controversy.

wilderness, I was destined to experience a change in living conditions. This carefully assembled party and elaborate equipment were to become useless during my visit to the oil fields, for I was to experience the wonderful hospitality for which British gentlemen are noted the world over and which—had they not been Britishers—would doubtless have resulted in a similar measure because they were oil men. I was considered to be a guest of the oil company and was informed that my cook and staff need do no work while in the fields. This gratifying assurance was carried out to the letter, for my coming was wirelessed ahead from camp to camp, all was in readiness for my reception daily, and I was enabled to see everything desired without loss of time or effort. In every camp some official was made responsible for my entertainment, no point was overlooked and nowhere was I left unprovided with helpful guides. Naturally all this was most agreeable and it materially assisted in collecting the data needed for the reports which were to be made to the Persian Government.

*Consulting Petroleum Engineer, 50 Church Street, New York City, and 68 Quai d'Auteuil, Paris XVI, France—Third article.

The first article in this series written specially for The Oil and Gas Journal was published in the issue of December 20, 1928, and the second April 18, 1929.

A geologist had been sent to Bushire to point out the road, but ignorant of that fact, I left the low-lying city on the morning of Saturday, March 31, traveling in the touring car accompanied by the truck bearing the supplies, equipment and spare parts. Bushire will be long remembered as Persia's principal seaport

Well in the Naft-khaneh Field.

and as being the city with the poorest drinking water and other unsanitary conditions of any seen in Persia.

Oil Company Roads

The road was traced with difficulty from village to village northward over the Coastal plain, ferrying the Rud (river) Hilla and thence entering a vast territory in which the Anglo-Persian Oil Co. is predominant. From here northward through the test areas and oil fields this company operates hundreds of miles of roads which are passable for automobiles except in the wettest weather. The long-continued prevalence of rainy weather at certain seasons, however, is attested by the experience of an American friend who was caught in a sudden storm somewhere in this general region and marooned in a donkey pen for a week with but little food or water.

One of the grievances of the oil company is that it is taxed for roads which it has constructed at its own expense for its own operations but which are used by the Government as well as by the traveling public to the economic betterment of Persia. I was relieved, after experiencing the rough "gach" (gypsum) roads between Shiraz and Bushire, to find myself again on highways that are actually "worked." Of course Colonel Morris, Persia's able Director General of Roads and an American, is doing what he can to put the roads in good condition throughout Persia, but he is handicapped by limited funds and by political interference.

The temperature was high and wheat was ripening here on this day that was like midsummer, but which was early spring in Tehran. Gazelle and partridges were shot for the larder, for I little realized that I was approaching a real oil camp with regular kitchens and a full stock of provisions. It was not on my program to be a guest of anybody; yet the friendly hospitality was none the less appreciated.

Visit to Test Area

Ganawah is situated at the end of a 79 mile drive north of Bushire and is the seaport of the southern test areas, where the oil company maintains its wharves and certain shops. The superintendent, J. Davis, had been expecting me, and soon the whiskeys and sodas which constitute an important adjunct of all British camps the world over were being offered. I slept in a real bed that night for the first time since leaving Tehran. The next morning this gentleman drove me to the nearest test area at Mishun, 61 miles by road northeast of Ganawah. Mishun, like a majority of the test areas, will not be found on existing maps. The road crosses the flat plain for a few miles and then proceeds over the rough gach hills, where none but experienced road engineers could have placed a motor highway. We traveled up and down steep grades, around zigzags and hairpin bends and over great abysses into Mishun, several years ago a barren, waterless waste, but now a busy oil camp. One might almost have believed himself on his way back to the "ladder" and Shiraz, if the partially tented oil camp had not made its appearance in the center of a high-lying valley.

The day was Sunday and a holiday party was in progress, for Mr. Capito, the manager, had completed his 15 years of service in the Persian fields and he and his wife were about to return home. The party included practically all of the British and Americal drillers and other "European" employes of Mishun and the directly adjoining camps, and thus an excellent opportunity was available for becoming acquainted.

Test Wells

Test wells on the Chillingar and Gachqurighuli anticlines were visited the next day under the manager's guidance, the last mentioned locality being 40 miles distant by motor road. In company with a geologist a certain hill was visited which has caused some controversy between the company's geologists, having some resemblance to an igneous plug but is otherwise suspected of having been naturally fused by ignited natural gas or oil. While at Mishun the historic oil seepages at Chesmeh-naft at the eroded north end of the Sulabadar anticline were also visited on foot and muleback. These seepages are important to the company as

Test well in the fields of Southwest Persia.

having furnished fuel with which to drill the first Mishun test wells, before sufficient fuel was found by drilling. The oil at Chesmeh-naft emerges from the upper part of the outcropping Asmari limestone of Oligocene or Lower Miocene age[1] which constitutes the principal producing formation of the Persian fields.

At Mishun I was joined by Mr. Martin Strong, resident geologist, back from his long motor chase to Bushire with the kind intention of guiding me to the test areas. In order to reach the next group of operations we were obliged to return to the coastal plain during an entire day, lunching at the company's rest house at Hindiyan, and after dark ascending again into the foothills at Pazanun, 149 miles north of Ganawah by road. Here the night was spent in the hospitable tented village and in the morning the test wells and operations of Pazanun and Agha Jari were inspected.

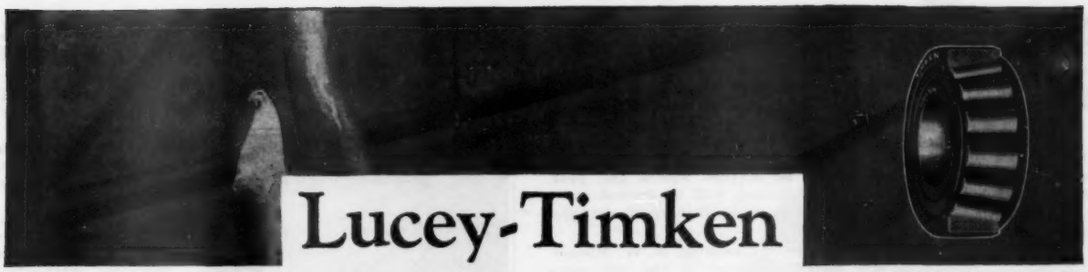
New Discovery

Hastening northward, the journey was continued again on the coastal plain, bound for Haft-qel, a test area in which oil had recently been discovered in a well having a capacity of about 7,000 bbls. per day. By lunch time the company's rest tent at Khalafabad, a small village at the ferry over the Jarahi Rud, was reached. The ferries in this part of Per-

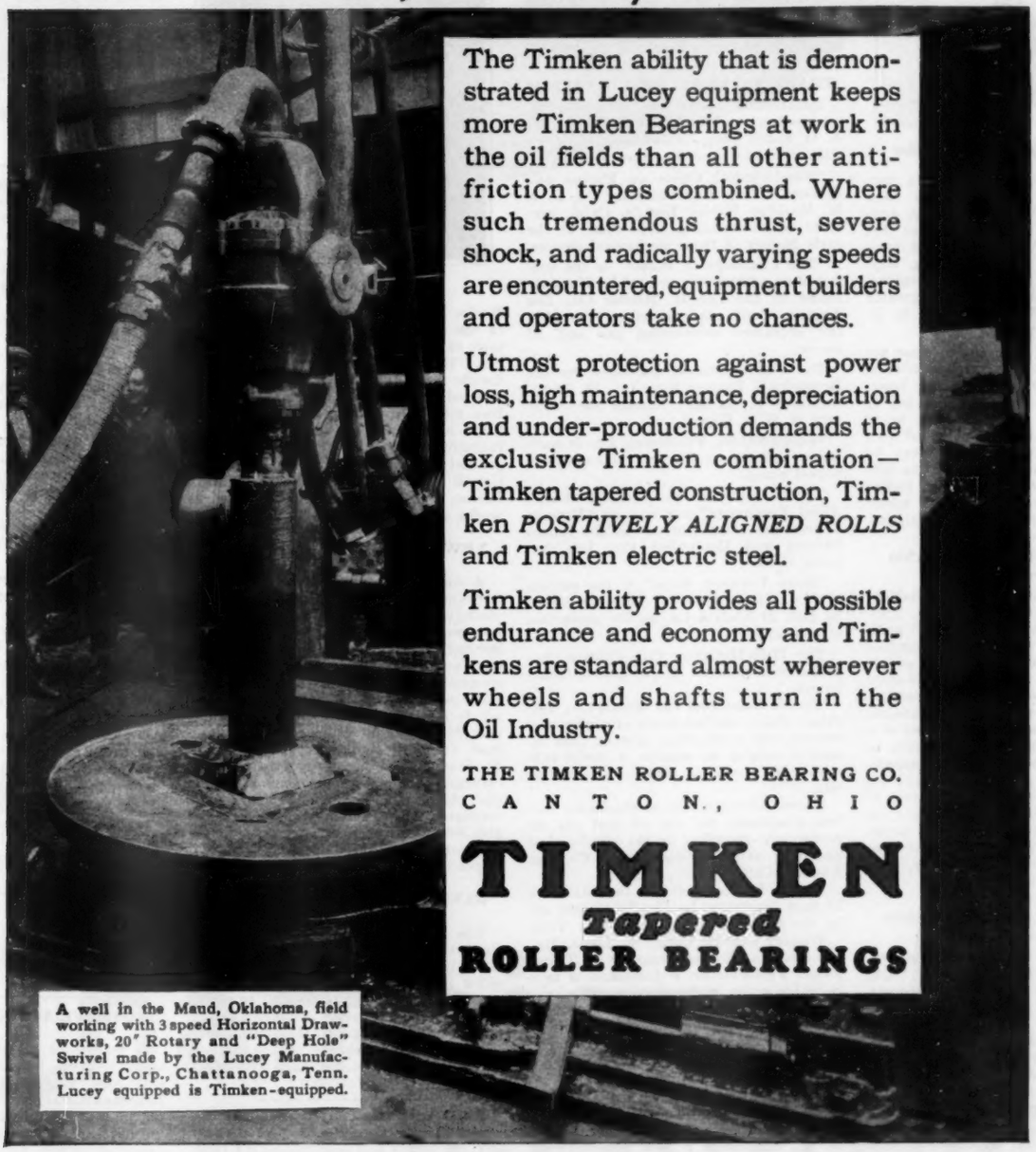
(Continued on Page 204)

View in the Persian fields. The principal town of the Masjid-i-Suleiman oil field.

[1]The geology of the fields has been discussed by H. G. Busk and H. T. Mayo in "Some Notes on the Geology of the Persian Oilfields," Jour. Instn. Petrol. Technologists, Vol. V., No. 17, Dec., 1918, pp. 3-33, and by R. K. Richardson in "The Geology of the Oil Measures of South-West Persia," Jour. Instn. Petrol. Technologists, Vol. X, No. 43, June 1924, pp. 256-296.



Lucey-Timken Draw-works, Rotary and Swivel



The Timken ability that is demonstrated in Lucey equipment keeps more Timken Bearings at work in the oil fields than all other anti-friction types combined. Where such tremendous thrust, severe shock, and radically varying speeds are encountered, equipment builders and operators take no chances.

Utmost protection against power loss, high maintenance, depreciation and under-production demands the exclusive Timken combination—Timken tapered construction, Timken *POSITIVELY ALIGNED ROLLS* and Timken electric steel.

Timken ability provides all possible endurance and economy and Timkens are standard almost wherever wheels and shafts turn in the Oil Industry.

THE TIMKEN ROLLER BEARING CO.
C A N T O N , O H I O

TIMKEN
Tapered
ROLLER BEARINGS

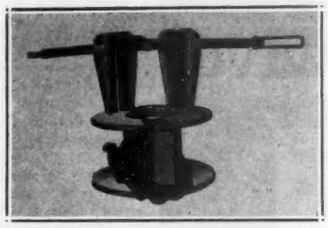
A well in the Maud, Oklahoma, field working with 3 speed Horizontal Draw-works, 20″ Rotary and "Deep Hole" Swivel made by the Lucey Manufacturing Corp., Chattanooga, Tenn. Lucey equipped is Timken-equipped.

EQUIPMENT AND SUPPLIES

DEEPWELL TUBING SLIP AND SPIDER ON MARKET

To preclude swaging long strings of tubing while they are being pulled or run in the hole and to provide a slip which will hold positively long strings of hard-steel upset tubing, the W-K-M Co., Inc., Houston, Tex., is manufacturing the W-K-M Deepwell tubing slip and spider.

The new tool is based on the design of the W-K-M regular tubing slip and



Deepwell Tubing Slip and Spider

spider, thousands of which are in use. The regular W-K-M tubing slips have four segments, each 7 inches long, supported by a 3½-inch backing in the spider. The Deepwell tubing slips have six segments, each 9 inches long, supported by a 6-inch backing in the spider. Six segments are used to provide greater flexibility and perfect conformity to irregularities of the tubing.

All teeth are machine cut to close accuracy, and all segments are heat-treated by a special process to insure long wear. The spiders are designed to set on top of all types and sizes of casingheads, being tied down by special chains provided with each spider. If desired, spiders can be furnished with grooved bosses on the bottom side, which permits their being locked in place by the cap screws with which most types of casingheads are equipped.

LEEDS & NORTHRUP EXPAND

Through the purchase of adjoining property the Leeds & Northrup Co., Philadelphia, Pa., has acquired 190,000 additional square feet of property including approximately 85,000 square feet of additional floor space in a modern one-story building of saw-tooth roof construction. The new building will be made integral with the present building by means of a connecting wing, on the construction of which work has begun. The company manufactures automatic control and recording instruments. This expansion of manufacturing facilities reflects the increased interest which industry is showing in more accurate methods for controlling temperature, conductivity, frequency, speed, combustion, etc.

MAJ. LAWSON ON COMMISSION

Major Robert S. O. Lawson, president of the Ajax Rope Co., Inc., New York, has been appointed by Governor Morgan F. Larson, of New Jersey, to the Interstate Bridge and Tunnel Commission, which will deal with the co-ordination of vehicular and other traffic problems between New York and New Jersey.

OIL WELL SUPPLY BRANCH

It is announced that the Oil Well Supply Co., Pittsburgh, Pa., will establish a storage warehouse for oil well equipment at Okotoka, Alberta, to serve the Turner Valley Field. C. J. Anderson, representative of the company, was in Calgary recently in connection with the project. About $500,000 worth of equipment will be carried.

MOONEY PLANE TO BE BUILT BY BRIDGEPORT

J. A. Woods, president of the Bridgeport Machine Co., Wichita, Kans., announces that his concern has absorbed the Mooney Aircraft Co. as a subsidiary and that manufacture of the Mooney ship will be started within the near future. A factory will be erected on a tract adjacent to the Bridgeport company plant.

At a directors' meeting, A. W. Mooney was elected president of the new company, with Mr. Woods as chairman of the board, and A. A. Buschaw, vice president and treasurer.

Mr. Mooney's ship will be a low-wing monoplane of cabin type. It will be a three-place ship, designed to have a large baggage carrying capacity, at high speed.

TRADE LITERATURE RECEIVED

Information about the Smithwelding process is given in a bulletin issued by the A. O. Smith Corp., Milwaukee, Wis., entitled "Smithwelded Pressure Vessels."

"Non-technical Chats on Pumps and Pistons," being distributed by the D. & M. Machine Works, Lomita, Calif., presents in entertaining style some of the early history of these mechanical devices.

"The Challenge to Waste" is the subject of an attractively printed booklet published by the Lee B. Mettler Co., Los Angeles, Calif., and describing the Mettler entrained combustion gas and oil burner.

The Yellow Strand, published by the Broderick & Bascom Rope Co., St. Louis, continues in its May number the "History of Wire Rope."

Wilson-Snyder, Pittsburgh, Pa., is mailing a bulletin on its new high-pressure hot-oil pump.

Two bulletins, one on "Sucker Rods and Allied Equipment" and one on "Reverse Gears," are being sent out by the Emsco Derrick and Equipment Co., Los Angeles, Calif.

"More Forward Steps" is the subject of No. 2 in a series of bulletins issued by Hill, Hubbell & Co. on the protection of pipe lines.

The Hills-McCanna Co., Chicago, has prepared a bulletin on its proportioning pumps.

The National Tool and Metals Co., Torrance, Calif., manufacturer of casing protectors and slush-pump pistons, has issued a catalog on anglite, a metal substitute for the black diamond on drilling bits.

Recent developments in automatic control equipment for the oil and gas industry are described in the catalog just issued by Neilan, Schumacher & Co., Los Angeles, Calif.

"Celite for Concrete" is the title of a 24-page illustrated booklet being sent out by the Johns-Manville Corp., New York.

Wagner Electric Corp., St. Louis, Mo., has issued a 12-page pamphlet on Transformer Performance, a discussion of losses which occur in distribution and power transformers, the method of making tests on transformers and the calculations of operating characteristics from the test data.

DIRECT-CURRENT CAM SWITCH

The General Electric Co., Schenectady, N. Y., announces a new direct-current cam switch, designated CR-3108, developed to satisfy the needs of central stations for such a device to control auxiliaries such as pumps, blowers, etc. The switch can also be used for similar non-reversing applications where the current inrush or starting torque is not severe or the operations are not frequent.

WHALEN NOW SUPERINTENDENT

D. J. Whalen has been appointed superintendent of the tank car department of the Pressed Steel Car Co., McKees

D. J. Whalen

Rocks, Pa. Mr. Whalen has been engaged in the manufacture of steel, freight and tank cars since the inception of the steel car. He helped build the first steel freight cars turned out at the Schoen Pressed Steel Manufacturing Co.'s Woods Run plant, Pittsburgh, in 1897 and later filled important positions in car manufacturing plants. In 1915 he was made general superintendent of the American Car & Foundry Co.'s tank car plant in Milton, Pa., and until recently served as works manager of that plant.

NEW DIVISION IS ANNOUNCED

A complete new line of improved electric and hand power cranes, hoists and trolleys up to 10-ton capacity is announced by Robbins & Meyers, Inc., Springfield, Ohio, manufacturers of electric motors, motor-generator sets and electric fans. The executive, technical and sales personnel of the new division were all formerly associated with the Chisholm-Moore Manufacturing Co., of Cleveland, Ohio, in similar capacities. Frank F. Seaman has been appointed general manager of the division; Carl E. Schirmer, chief engineer; John R. Mears, sales manager; Albert Kreh, William J. Scott and John J. Becker, district sales managers for New York, Chicago and Detroit, respectively.

RUSSELL HAS DALLAS OFFICE

The Russell Manufacturing Co., Middletown, Conn., has opened a new branch office in Dallas, Tex. From this branch office Arkansas, Colorado, Kansas, Missouri, Oklahoma and Texas will be served with Rusco automotive and aeronautical products and belting. C. H. Nugent, division manager in charge of the branch, will have a service manager and credit manager for this territory.

READY IS DISTRICT MANAGER

V. E. Ready has been appointed Oklahoma district manager of the Natural Gas Equipment Co. with offices in the Atco Building, Tulsa. The home office and manufacturing plant of the company are in Los Angeles. The principal products are Wilgus pressure regulators, N.G.E. gas burners, N.G.E. liquid level controllers and Anubis orifice meters.

HAZARDS ARE REDUCED BY RELEASING SPEAR

The Alco Oil Tool Co., Compton, Calif., manufacturer of the Alco hard formation, four-way rotary drilling bit, has announced the manufacture of a releasing rotary spear, built to meet the demand for a positive action, rugged, efficient rotary spear that would not fail at the "strain point" when a fish is being caught or pulled from the hole.

This new spear, which has only four movable parts, has undergone severe tests, according to officials of the company. In designing the spear, Alco engineers sought to produce a tool that would reduce the pipe-hanging hazard to a minimum. Only the guides are in contact with the pipe while the tool is being run in the hole. The slips operate only when the tool is given a one-quarter turn to the right. If the pipe cannot be pulled, a one-quarter turn to the left releases the strain and the slips disengage themselves, and the spear may be pulled from the hole.

BUSINESS NOTES

The Johns-Manville Corp. has moved its western division headquarters from South Michigan Avenue and Eighteenth Street to the Carbide and Carbon Building, 230 North Michigan Avenue, Chicago.

The rapid growth in the use of reduction gears is indicated by a statement issued by the Lufkin Foundry and Machine Co., Lufkin, Tex., that in the last 5 years the company has sold more than 800 worm-gear reduction units. The plant has been operating day and night shifts and Sundays.

The New Bedford Cordage Co. has moved its general offices from 120 Broadway to 233 Broadway, New York.

The New York offices of the Reading Steel Casting Co. have been moved to the New York Central Building. The company's New York warehouse is now at 333 Hudson Street.

R. S. Arthur, formerly in charge of the Chicago office of the Dravo Equipment Co., has been appointed manager of the midwestern branch office recently opened by the Aeroil Burner Co., of West New York, N. J., at 176 North Wacker Drive, Chicago.

The Alco Oil Tool Co., Compton, Calif., has been appointed distributor for the American Cable Co. products (Tru-lay and Crescent Brand wire ropes) throughout the California oil fields.

At a meeting of the board of directors of E. F. Houghton & Co., Philadelphia, Pa., Louis E. Murphy was elected president, to succeed the late Charles E. Carpenter. A. E. Carpenter was elected first vice president and treasurer, and George W. Pressell second vice president and secretary.

The Wright Manufacturing Co., maker of chain hoists, trolleys and cranes, has moved its New York offices to the New York Central Building.

POSITIVE-ACTING SEPARATOR

A feature of the Bundy oil separator, manufactured by the Griscom-Russell Co., New York, is the special grid arrangement in staggered position on multiple plates. By this arrangement the liquid particles being carried along with the vapor are caught by the grids on the second plate if they pass between the grids of the first plate. After being caught by the grids, the particles of oil or gasoline are removed from the vapor path by dropping into an interior channel cut through the center of each column of grids so as to conduct the oil into the receiving chamber.

AMONG CHAMPIONS

THE Moore

Champion DERRICK

CHAMPION OF THE OIL COUNTRY

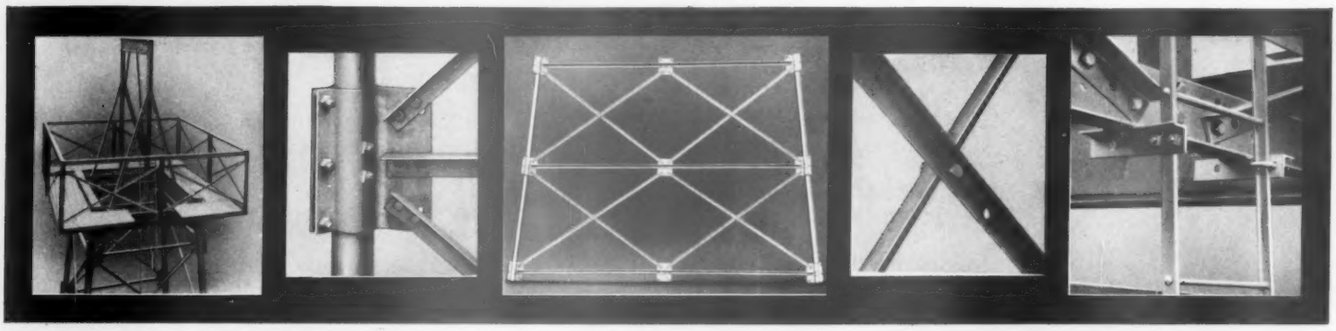
THE Moore Champion DERRICK

M·O·B·I·L·I·T·Y

Move! Move Quickly! Move Easily!

Whether a derrick is being erected or dismantled, the ease and rapidity with which the work can be done is an important thing. This feature of mobility is highly developed in the Moore Champion Derrick. It is the result of simplicity of design, interchangeable parts and accurate fabrication.

The Moore Champion Derrick conforms to A. P. I. standards



Standardized safety platforms and gin poles are easily erected on any Moore Champion Derrick.

The new Moore clamp gives quick and convenient attachment of bracing to the leg sections.

Two holes in the center of all braces allow them to be used with either end up. No rights and lefts.

Girts and braces are punched so that bolts may be tightened by means of one wrench.

Ladder sections are interchangeable and are conveniently fastened at any point.

LEE C. MOORE AND COMPANY, INC., PITTSBURGH .. TULSA

ESTABLISHED 1907

New York Offices: Oilfield Equipment Company, 30 Church Street, New York, N. Y.

DALLAS, TEXAS - HOUSTON, TEXAS - WICHITA, KANSAS - PARKERSBURG, W. VA. - CASPER, WYO. - SHREVEPORT LA.

Stocks in All Principal Fields

Natural Gas Developments

GAS RESEARCH FINDS NEW MELTING FURNACE

Development through co-operative research of a process that to all appearances revolutionizes brass melting is announced today by Alexander Forward, managing director of the American Gas Association, addressing the annual convention of the Midwest Gas Association at Minneapolis, Minn.

A radically new type of brass melting furnace has been developed as a result of the American Gas Association's $500,000 program of industrial gas research. For the first time in the history of the brass industry, the fragile and crumbling crucible and refractory lined furnace have been supplanted with a permanent retort of special alloy metal, apparently of indefinite life. Its advantages are summarized as follows:

Astoundingly low fuel consumption of only 2½ cubic feet of gas a pound of brass melted, superseding other fuels.

Practical elimination of metal losses during brass melting.

Apparent elimination of the costs of crucible and refractory maintenance.

Automatic temperature control.

Greatly improved working conditions in foundries, resulting in labor saving, greater efficiency of workers and avoidance of excessive heat, noise and fumes.

Foundrymen have never before known how to avoid the great loss of metal in brass melting, nor the heavy costs of crucible maintenance, and have been at a loss as to the most economical fuel for this use. In many types of furnaces, metal losses during operation equal or exceed the cost of fuel, whether gas, oil or coke.

Through co-operative research between the American Gas Association and the American Gas Furnace Co., there has been developed a metal alloy that will, it is reported, repeatedly withstand working temperatures in excess of 2,000 degrees Fahrenheit in contact with molten metal. While crucibles have a life of only 15 to 20 heats, the first retort made from this new alloy has already served for more than 250 heats and is none the worse. The new brass melter consists of a revolving metallic retort, externally fired and enclosed in a shell for heat concentration, atmospheric control and fuel conservation. The heavily insulated sheet steel drum or shell is mounted on two bearings held by a steel frame so it may be tilted at any angle. Ten gas burners, five on each side, are mounted on this drum in such manner that they fire into its interior. Within the drum is a special alloy metal retort so mounted that it revolves with a motor and variable chain and gear drive.

The first installation in commercial practice was at the plant of the Trenton Brass & Machine Co., of Trenton, N. J., manufacturing plumbers' supplies. Prior to the introduction of the gas melter, coke-fired pit furnaces, gas-fired furnaces, and electric furnaces had been tried and discarded and an oil-fired crucible furnace had been standardized upon. In as much as these oil-fired crucibles represented the best foundry practice the Trenton management had been able to effect, they afforded the most valuable yardstick with which to measure the economies of the new gas melter. The same foundry practice is used with both.

Heretofore under the best practice the volatilization losses during melting ran between 5 and 6 per cent, and each crucible when pulled from the furnace has to be skimmed of the oxidized metal before it can be taken to the pouring floor. These losses are now practically eliminated, as the only loss under this method is during the pouring operation and is so minimized there is scarcely any variation in the chemical analysis of the castings. A more workable casting is produced, more easily machined

The low fuel consumption of 2½ cubic feet of gas per pound of brass melted is one of the principal achievements of this furnace. An appreciable fuel saving is that 800 degrees Fahrenheit of heat remain in the retort the following morning, excepting, of course, Mondays.

AMARILLO HELIUM PLANT MAKES INITIAL SHIPMENT

Shipments of helium from the Government's new helium production plant near Amarillo, Tex., started May 6 with the dispatching of tank car USQX 201, filled with about 200,000 feet of helium, to Langley Field, Virginia, it is announced by the Bureau of Mines.

The new plant was built and is operated by the Bureau of Mines at Soncy, on the Rock Island Railroad about 7 miles west of Amarillo. The helium is extracted from natural gas having a helium content of 1¾ per cent, produced from the Cliffside structure lying northwest of Amarillo. Gas from 26,000 acres of land is available to the plant through a contract between the Department of Commerce and the Amarillo Oil Co.

The helium-bearing natural gas is transported from the wells to the plant, by the natural pressure of the wells, through a welded steel pipe line 11 miles long. In the plant the gas is cooled to a temperature so low that all of the constituents except helium are reduced to liquids. This temperature is approximately that of liquid air and is lower than 300 degrees Fahrenheit below zero. The helium is drawn off as a gas and the liquids are returned to the gaseous state by allowing their temperature to return to that of the atmosphere. A part of the gas resulting from the evaporation of the liquid is used as fuel to generate power to operate the plant, and the remainder is discharged into a pipe line which carries it to Amarillo, where it is used as domestic and industrial fuel. The process of extracting helium is a continuous one, involving pressures as high as 2,500 pounds per square inch.

The car in which this first shipment was made is one of two specially built helium tank cars owned by the Air Corps, United States Army. It carries helium under a pressure of 2,000 pounds per square inch. When the car reaches Langley Field the helium will be discharged into other containers for use in the Army's lighter-than-air craft, and the tank car will be returned to the Amarillo plant for reloading.

ROCK PRESSURE DROPS IN MUSKEGON GASSERS

MUSKEGON, Mich., May 18.—Rock pressure and open-flow capacity of the thirty-five Dundee gassers in the Muskegon Township area are dropping rapidly with a pull of about 16,000,000 feet a day by four gas lines.

A test taken by John L. Robinson, manager of the West Michigan Consumers Co. line, showed that Dundee gas wells on their line decreased 35 per cent during two months from March 1 to the later date.

Gas wells which had an original open-flow capacity of from 15,000,000 to as high as 25,000,000 feet and a rock pressure of 900 to 920 pounds now gauge only 8,500 feet with a rock pressure of 500 pounds. The rock pressure on a number of wells dropped from 620 to 500 pounds in two months. It is predicted that hydrostatic pressure will overcome the gas pressure at about 200 to 250 pounds.

TURNER VALLEY GAS WASTAGE MISLEADING

CHATHAM, Ontario, May 20.—A statement dealing with the apparent wastage of gas in the Turner Valley Field has been issued by S. J. Watts, secretary-treasurer of the Canadian Western Natural Gas, Light, Heat & Power Co., which supplies Calgary. Mr. Watts states that the Calgary peak load last winter was around 60,000,000 feet. At that time only 37,000,000 feet were available from the Turner Valley, and reserves in the Foremost, Burdett and Chin Coulee Fields had to be drawn upon.

The average daily open flows available from Turner Valley wells till recently amounted to 100,000,000 feet, made up as follows: Okalta's No. 1, 35,000,000; Home's No. 1, 35,000,000; Royalite's No. 4, 19,000,000; and about 10 other wells, 11,000,00. Other production includes Foremost Field, 60,000,000; Burdett, 15,000,000, and Chin Coulee, 300,000.

When all wells are blowing to capacity and the average daily consumption in Calgary, Lethbridge and other towns is steady at 14,000,000 feet, the Turner Valley wastage is 81,000,000 feet. There is no waste from the other fields, which can be shut in; but the Turner Valley wells have to be permitted to flow.

According to Mr. Watts, these figures are misleading. Because of friction and other natural causes met in piping gas, only 50 per cent of the open flow is available to the gas-using communities. This reduces the available gas from Turner Valley when production is at its peak to 47,000,000 feet. Last winter Okalta's No. 1 bridged, and when the peak demand in Calgary rose to 60,000,000 feet, only 37,000,000 feet were available. All the other fields had to be drawn from to meet the demand.

To ensure reliable production to meet the peak demand, the company is assisting drilling on the Wildcat Hills structure, 25 miles northwest of Calgary, and is drilling in a new area between Foremost and Burdett, where one and possibly two more wells will be put down.

COSTE WARNS AGAINST GAS OVERDEVELOPMENT

CHATHAM, Ontario, May 18.—A warning against overdevelopment of the Turner Valley Field was sounded recently by Eugene Coste, former president of the Canadian Western Natural Gas, Light, Heat & Power Co. Mr. Coste a few days ago arrived in Calgary with his wife and daughter, to spend a few weeks before taking up his residence in Toronto.

Mr. Coste expressed the belief that too many wells are being drilled in the Turner Valley, and as a consequence there is a tremendous waste of valuable natural gas to obtain comparatively small quantity of naphtha. He said:

"After more than four years of intense development, the field has been proven mostly a gas producing area, and by drilling numerous wells, millions of cubic feet of the valuable fuel is being blown into the air and lost forever. The gas company is using all available means to save it, but can use only a small proportion.

"Fewer wells should be drilled in Turner Valley and more effort devoted to exploration in other parts of the province for oil areas. If this is not done many oil company stockholders are doomed to lose their money. I do not say that drilling in the valley will not locate more large wells, but so much drilling in that area is not necessary.

"The belief that the field ranks among the world's best is exaggerated. At present its production is about 2,000 bbls. of oil and naphtha a day, whereas fields in the United States and elsewhere produce 100,000 and in exceptional cases 300,000 bbls. a day. The time taken to develop these fields has been no longer, and often much shorter, than the period already devoted to development in Turner Valley.

"Until the prairie provinces have larger populations and more factories it is not economically possible to pipe gas to Saskatchewan and Manitoba from Alberta as has been proposed. It can be piped for about 200 miles under present conditions, but if there was a greater market it could be taken a distance of 400 to 500 miles. Gas exploration work should really be done in western Saskatchewan."

Mr. Coste and family have been abroad a year, traveling by auto through France, Algiers, Morocco, Italy and other European countries. They will go to Europe again this summer.

COURT DENIES INCREASE IN FORT WORTH RATES

FORT WORTH, Tex., May 18.—W. H. Sanford, master in chancery in local federal court, recommends that the Fort Worth gas company be not granted the right to raise its rates. The existing rate for domestic gas is 75 cents per 1,000 feet, less 10 per cent discount if promptly paid.

Application of the company to increase its rates was first denied by the city council. On July 16, 1928, the Railroad Commission denied the petition of the company.

The gas company has indicated that in case the report of the master is adopted it will appeal to the federal Supreme Court.

Mr. Sanford in his report said: "The existing rate for domestic gas established by agreement on June 9, 1920, is sufficient to enable the company to earn a reasonable return on a fair valuation of its public service plant, property and business over and above its expense and annual charge for depreciation required to maintain.

"I conclude that the injunction prayed for should not issue and that the bill should be dismissed without prejudice."

He held that 2 per cent was a fair charge for depreciation and 7 per cent an adequate and fair return on the company's investment.

Mr. Sanford set the value of the company property January 1, 1928, at $3,846,878 and the average fair value for the year 1928 at $4,134,378. The company contended for a valuation of more than $6,000,000.

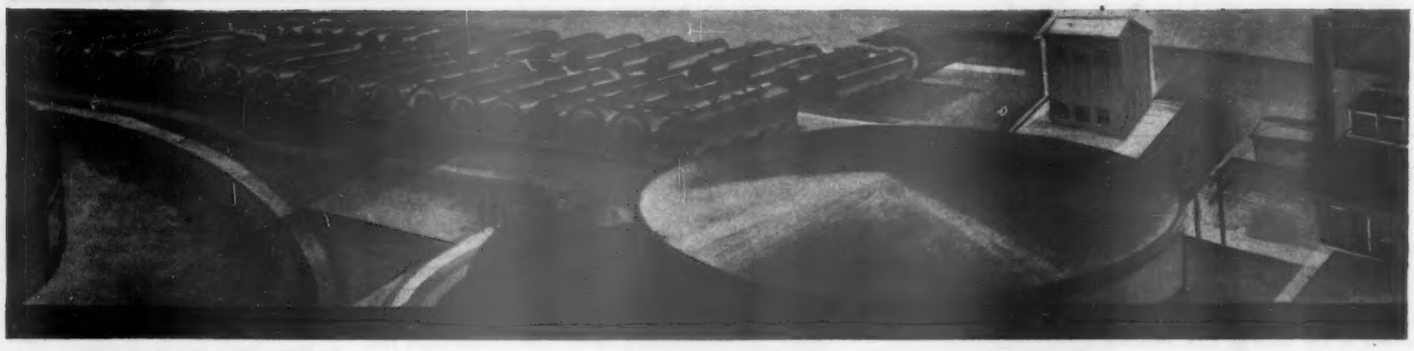
The Railroad Commission had previously held that 7 per cent was a fair rate of return on the property and business valuation of the company, which it set at $4,000,000.

In praying for an injunction to prevent the city from interfering with a raise in rates, the gas company contended that present rates were confiscatory.

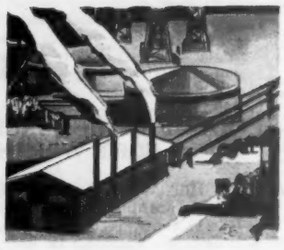
The report of Mr. Sanford was addressed to the three federal judges who were appointed October 1, 1928, to hear testimony. They will come to a decision after reviewing the master's report.

INDUSTRIAL GAS COURSE

The annual industrial gas course offered by the Massachusetts Institute of Technology will be given at the institute, Cambridge, Mass., June 17 to 22. This is the eighth consecutive year that Massachusetts Institute of Technology has conducted a specially prepared course for industrial gas men. The course is sponsored by the New England Gas Association with the co-operation of the American Gas Association. Subjects to be taken up include Furnace Design and Construction, Combustion, Insulation and Refractories, Burner Application, and Report Writing.



Naturaline Processing Plant and



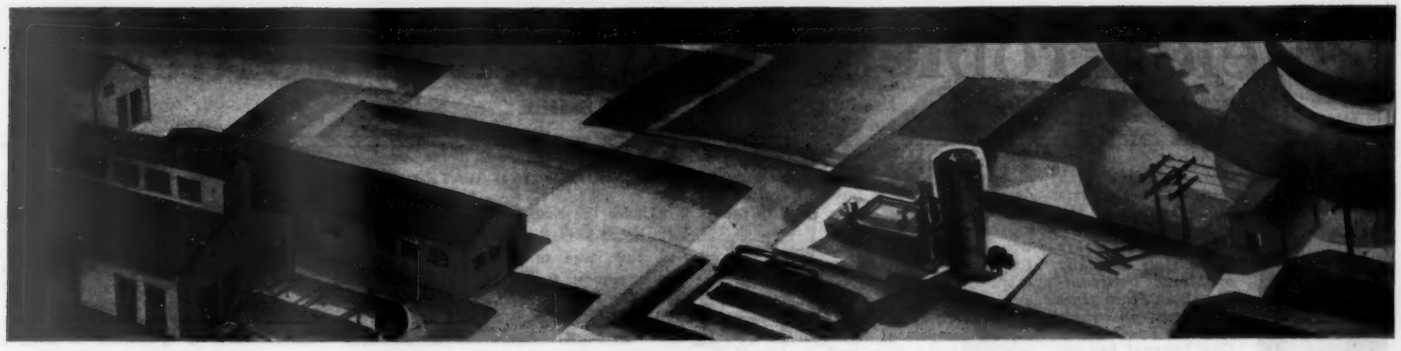
Nothing can remain static and one thing is certain—change. The gasoline business is changing—required to advance with improved engine designs—and natural gasoline has become a very determinate factor in the perfecting of finished fuels.

We are able to supply any demand for natural gasoline from a single car to a trainload — promptly — efficiently. We have met the needs of refiners successfully for years and have steadily broadened our organization to handle the growing volume.

CHESTNUT & SMITH
CORPORATION

Chestnut & Smith Building
Tulsa, Oklahoma

Chestnut & Smith Plant



Export Terminal at Westwego, Louisiana

Naturaline is a finished aviation fuel made entirely from natural gasoline–developed in the Research Department of the Chestnut & Smith Corporation.

It is manufactured in a modern plant devoted exclusively to the production of *Naturaline*.

As a special aviation fuel *Naturaline* is already nationally known but as a blending medium for jobbers in blending their own premium motor fuel in order to increase its volatility and anti-knock value it is now becoming appreciated.

The experience of jobbers who are marketing a benzol blend has been that by using *Naturaline* they are able to reduce the percentage of benzol as much as one-half and at the same time increase the volatility and anti-knock value.

Write for full information

NATURALINE

Product of Naturaline Company of America

Chestnut & Smith Building
Tulsa, Oklahoma

at Ranger, Texas

Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

GAS FROM STOCK TANKS

I have a small lease and am handling my oil and gas through a flow tank and passing it from the flow tank to the stock tanks which are connected with the pipe line. Even in relatively cold weather I have noted some gas coming off of the stock tanks and I wonder where it can come from and what method can be used to stop it. Any suggestions you can give me would be appreciated.—L. A. E.

From the conditions you describe it would seem that your wells are connected into the flow tank and deliver to it all the wells' production, that is, all oil, water and gas. It would also appear that there is some pressure on the flow tank that is causing gas to pass over with the oil. This gas is actually entrapped or entrained in the oil and when it reaches the storage tanks it has a chance to escape because being lighter than any other product in the tank it comes to the surface.

This practice can actually lower the gravity of the oil in the stock tanks that will be delivered to the pipe lines, and it will be found that an appreciable increase in gravity can be secured if this gas is trapped off in the flow tank and not permitted to pass over with the oil to the stock tanks. This can be done by a simple method and the use of a few pipe fittings to form a seal in the flow tank through which the gas cannot pass.

If the tank can be opened and entered it is best to put the trap on the inside and to do this a short nipple, say four inches long and of the same size as the outlet flange, is screwed into the inside half of this flange. Use an elbow and a piece of pipe turned down to form the seal.

If the long leg of this trap—that is, the piece of pipe turned down—is cut so that it will have three inches of length for each ounce of pressure placed upon the flow tank, the gas cannot pass out with the oil.

Assuming that your flow tank is working under a pressure of six ounces above atmosphere the long piece of pipe turned down in the tank to form the seal should be about 18 inches long. This will form a column of oil that in effect has the weight equal to the pressure placed on the tank, so the gas cannot force itself down and out of the tank with the oil, and must pass away from the flow tank through other suitable passages provided for its escape. If it is not possible to get inside the flow tank to install the device as described here it is possible to form a seal outside of the tank by using a short nipple screwed into the outside of the outlet flange. Into that nipple screw an elbow and turn it upward and screw into this upturned elbow a piece of pipe cut to the required length as described above and then lead the oil back down to the level of the outlet flange by using another elbow and nipple with a third elbow screwed into the nipple and turned down and a second piece of pipe screwed into it. In the end of that pipe is placed a fourth nipple turned in the direction of flow from the flow tank to the stock tanks.

This is in effect an inverted U and it has the effect of raising the oil level within the tank to a point where it will form a seal that will equal the pressure placed on the tank. This simple device has proven its worth in actual practice.

POORLY TIGHTENED JOINTS

I am pretty well satisfied that some of the fishing jobs that we have had in the last year were the result of poorly tightened joints on the drilling tools. Several times that I know of it was just a case of the joints coming unscrewed. I have watched the drilling crews at work and I have seen them do things that I believe have a good deal to do with the joints coming loose. For instance I have seen them pound the joint with a hammer to loosen it and when that joint got unscrewed in the hole afterward and we had another fishing job I discovered that the threads were damaged. I blame that on pounding the joint. I have heard arguments in the derrick about the right way to put the wrenches on in screwing up a joint. I would be glad to get some suggestions on this point, for I am not a practical oil man myself.—L. Y. M.

There is no question about the big part poorly tightened joints play in fishing jobs. A large proportion of such jobs are necessitated by accidents resulting from failure to screw up the joints properly. The suggestions which follow in response to your request were obtained from the Keystone Driller Co.'s "Well Drillers Manual":

"The wrenches, one a right-hand wrench and the other a left-hand, should be put on the square so as to pull toward the hook side. They are much stronger when thus used. The joints should be put together with all the force two persons can exert on the wrench bar. There is no danger of getting them too tight or of breaking the joint if made of proper material. Never hammer the joint, either to tighten or loosen it, as this may spoil the threads.

"After a joint has been set up perfectly solid a slight mark may be made across the joint with a sharp cold chisel, half of it on the pin collar, and half of it on the box. Each successive time this joint is screwed up, the mark on the box should go a little further past the mark on the pin collar. In this manner, it may always be known when the joint is set up firmly. If at the next setting up it does not go far enough, you will know that there is dirt on the face of the joint or in the threads which should be removed, as this dirt may work out and cause the joint to become loose in the well. One mark on the box will be sufficient, each bit having one to match it."

PUMP SPEED AND WATER RATIO

Under the head of "Controlling Water Ratio" it was stated in this department in the issue of May 2, in response to a request for "some practical methods for controlling the water ratio in oil well cementing practice":

"When the cement is mechanically mixed with water delivered into the mixer under pressure it is also possible to gauge the water in tanks before it passes through the pumps. The rate at which water is delivered to the mixer is then controlled by regulating the speed of the pump. With a little speed this can be done successfully, especially if the water ratio of the mixed cement is checked frequently."

A. D. Stoddard, chief engineer of the Halliburton Oil Well Cementing Co., suggests in the following interesting communication that the foregoing paragraph might be modified in the interest of accuracy:

"We have just read your answer to T.N.O. in Field Problems and Their Solution in The Oil and Gas Journal of May 2 with reference to controlled water ratio in oil well cementing practice. We note you suggest that the water ratio can be changed in the jet vacuum mixer by reducing the speed of the pumps. You have spoken of this as a mechanical mixer, but we assume that this at least included the jet vacuum mixer such as is used by our company.

"If you will pardon our making a slight correction, we wish to call your attention to the fact that the slowing down or speeding up of the pump does not materially change the water ratio. For example, if the pumps were slowed down, the speed with which the water passes through the jet would, of course, be slowed down and consequently the vacuum which pulls in the cement would be decreased and therefore the rate of pulling in the cement would be decreased, thereby keeping the water ratio approximately constant.

"The water ratio on this particular type of mixer is easily adjusted. The water ratio is changed rapidly by using a shorter or longer nozzle. In practice, a nozzle of such length is used to give a low water ratio, and a by-pass, which is part of the mixer, is used to increase the water ratio if the cement becomes too thick to be handled by the pumps. It might be interesting to note that the speed with which the water travels through the jet is approximately 350 miles per hour.

"From the above you will see that the water ratio is easily controlled by the man in charge of the operations, and in order to check the water ratio the water tanks are now being equipped with a gauge which reads not only in cubic feet and gallons but also in inches in the tank. Where it is desired to check the water ratio with this equipment, it is easily done. We merely wish to call the above facts to your attention, thinking that they possibly may be of interest to you or your readers."

WHY IS IT CALLED THAT?

SHOESTRING SANDS

The thin, meandering character of a series of sand bodies in eastern Kansas provided an apt name for them, "shoestring sands." These channel deposits, presumably marking parts of the course of a prehistoric river, lie just above the Cherokee shales of the Pennsylvanian time. They occupy what evidently were sharply cut channels in the shale. The shoestrings vary in width, with a maximum of about half a mile. The greatest known length is about 15 miles. Most of these strings of sand are less than 50 feet thick, though in a few places they are double that. They are not as large producers of petroleum as are a series of similar, but wider and thicker, deposits to the west of them.

CLARIFYING PRESSURE TERMS

I have noticed in various articles on natural gas subjects that the terms "shut-in pressure" and "reservoir pressure" are used frequently. Do those terms have the same meaning as "rock pressure"? If they do not I would appreciate your explaining briefly the difference.—D. E. I.

Until recently the term "rock pressure" was used to mean the same as the two other pressures, but since an effort is being made to understand pressure and volume relations of gas in underground reservoirs it has become necessary to use more specific terms to expedite discussion.

As its name implies, "rock pressure" originally was intended to mean the pressure imposed on the gas reservoir by the weight of the overlying strata. Since that weight is not often the actual cause of the pressure on the gas and since there are other causes of pressure, such as hydrostatic conditions, the term "reservoir pressure" was used to mean the pressure of the gas in the reservoir, regardless of the cause.

Since there is a difference between the reservoir pressure and the pressure at the well head, owing to the weight of the column of compressed gas and the weight of any other fluid in the hole, it was necessary to use a specific term for the pressure at the well head. Since that pressure was gauged at the well head when the well was shut in, the term "shut-in pressure" was applied.

NUMBER OF LINES NECESSARY

Is there any set rule regarding the number of lines to use in running a string of casing? The more lines you use, the slower the work is going to be because the casing-block moves more slowly when you use more lines. Of course, the danger of accident is smaller, but there is no sense in using more lines than are really needed—for you just slow up the work that much. It occurred to me that perhaps the petroleum engineers had worked out a rule covering this point. If they have, I would be very glad to know what it is.—K. G. E.

It is true, as you point out, that the greater the number of casing lines, the slower is the movement of the casing-block and hence the longer is the time required for the job of running the casing. The total weight of the casing and the amount of friction on it must determine the number of lines that should be used to perform the work safely. J. B. Case, chief deputy supervisor of the Department of Oil and Gas, California State Mining Bureau, says on this point:

"A general average for safety is six lines for less than 3,000 feet of casing weighing up to 50 tons, and eight lines for more than 3,000 feet weighing from 50 to possibly 80 tons. More lines are used for excessive weight. Nine lines were used at Standard Oil Co. of California's No. 16 San Gabriel to handle 4,724 feet of 60-pound, 11-inch casing, which weighed approximately 142 tons."

Hyatt Endurance in Lufkin Hoists

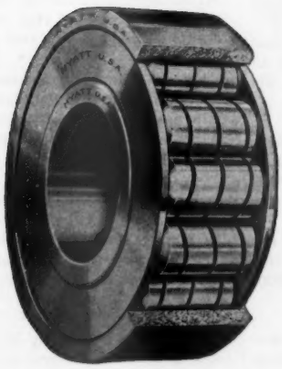
New No. 52 Lufkin Hoist. Built, and equipped with Hyatt Roller Bearings, by the Lufkin Foundry and Machine Co., Lufkin, Texas.

WHEN anti-friction bearings were considered for the new No. 52 Lufkin Hoist, illustrated, Hyatt stamina and economy convinced Lufkin engineers that the Hyattway was the right way to insure permanent operating satisfaction for this sturdy new unit.

And there are many other valuable Hyatt Roller Bearing advantages. Less power . . . less lubricant . . . less attention . . . less wear . . . and no adjustments . . . with friction-free Hyatts performing their appointed tasks, silently and efficiently.

Small wonder that equipment with Hyatt Roller Bearings is overwhelmingly favored by leading oil well operators . . . favored because operators know that Hyatt protection means longer lived, stronger built, money saving equipment.

Most leading builders now furnish Hyattized equipment. Their names, on request.



Hyatt Roller Bearing with outer race cut away to show roller construction.

HYATT ROLLER BEARING COMPANY

Newark Detroit Chicago Pittsburgh Oakland

HYATT

ROLLER BEARINGS

PRODUCT OF GENERAL MOTORS

MEN KNOWN IN OILDOM

James W. Taylor

James W. Taylor, of San Antonio, Tex., who has been appointed advisor in oil and gas matters to the register of lands in the Louisiana State Land Office, Baton Rouge, La., probably offers the first instance where a state government has employed a practical oil man to assist in leasing state lands for oil and gas. It is expected he will not stick to the rule of leasing to the highest bidder regardless of probable value.

Mr. Taylor left a lucrative position to go into the oil business and started with the Gulf Production Company on the derrick floor in order to learn the business from the bottom up. He worked as scout, in the producing department and 10 years ago was made district representative of the Gulf Production Company for Southwest Texas in charge of the offices in San Antonio. He has had experience in Louisiana, North Texas, Oklahoma, Kansas and California. In the Coastal country of Texas, including the San Antonio territory he is recognized as one of the best informed oil men that ever worked in that territory.

Mr. Taylor resigned his position with the Gulf Production Company two years ago to make a special study of gas-air lift methods. His work in the land office of Louisiana will be to advise the register of lands in regard to the probable value of leases and the register of lands in leasing state lands will be governed accordingly and will let to the highest bidder only when in his judgment, based on Mr. Taylor's advice, the highest bid is reasonably near the probable value of the lease. Mr. Taylor will advise the State regarding mineral lands generally as well as oil and gas.

PERSONAL PARAGRAPHS

A. O. Olson, drilling contractor, of Tulsa, Okla., visited Calgary recently.

* * *

R. V. Logan, head of the Logan Map Company, Inc., Fort Worth, Tex., is touring West Texas.

* * *

Clyde Vinson, independent operator, of San Angelo, Tex., recently visited Fort Worth, Dallas and Austin, Tex.

* * *

Paul Martin, chief scout for the Pure Oil Company, Fort Worth, Tex., has been making a tour of Louisiana Fields.

* * *

F. M. Lege, president and general manager of the Magnolia Gas Company, Dallas, Tex., spent several days in Houston, calling on officials of gas companies having offices in the latter city.

W. G. Ricker, superintendent of production for the Amerada Petroleum Corporation, of Tulsa, visited East Texas recently.

* * *

Dr. H. E. Opre, formerly an operator in Ohio and Indiana and Pennsylvania fields, has opened an office in San Antonio, Tex.

* * *

W. F. Chisholm, supervisor of the minerals division of the Louisiana Department of Conservation, has returned from Kansas City, Mo.

* * *

Maj. J. R. Partin, president and general manager of Woodley Petroleum Corporation, Shreveport, La., made a business trip to Fort Worth, Tex.

* * *

H. E. Schaefer, assistant manager of sales for the Wheeling Steel Corporation, Wheeling, W. Va., is swinging around the Mid-Continent Fields.

* * *

E. A. Landreth, head of the Landreth Production Company, of Fort Worth, Tex., has been to New York and other eastern cities on business.

* * *

Dave V. Smith, independent oil operator of Midland, Tex., purchased a Curtiss Robin Cabin plane in which he will fly to his various holdings.

* * *

E. R. Reeser, president of the Barnsdall Corporation and president of the American Petroleum Institute, has returned to Tulsa from Los Angeles.

* * *

T. B. Simpson, division engineer of The Texas Company at Shreveport, La., has been in Washington, D. C., for several days on a business mission.

* * *

Wesley Gates, head of the land department of the Sinclair Oil & Gas Company, Fort Worth, Tex., made a trip to West Texas on company business.

* * *

Gilbert Wood, head of the land department of the Independent Oil & Gas Company's Fort Worth, Tex., office spent a few days in West Texas on business.

* * *

Oscar R. Howard, prominent Mid-Continent and California operator, recently acquired substantial holdings in the Gilmore Oil Company of California.

* * *

Dan Mahoney, of the Sinclair Crude Oil Purchasing Company, Fort Worth, Tex., made a trip to the Corsicana and San Antonio districts on company business.

* * *

Louis A. Scholl, Jr., chief geologist of The Texas Company, with offices in Houston, Tex., was in Tulsa during the past week on business for his company.

* * *

N. C. McGowen, president of the Louisiana Gas & Fuel Company, returned to his Shreveport, La., headquarters this week from an extended business visit in New York.

* * *

Forrest M. Towl, New York City, president of the Southern Group of Pipe Lines, and H. C. Dorworth, Oil City, Pa., solicitor for the same group, were Pittsburgh, Pa., visitors.

* * *

Daniel J. Moran, president, W. W. Bruce, secretary and assistant to the president, and Maj. Gen. Baird H. Markham, of the Marland companies, were in New York City last week.

* * *

James L. Taylor, president of the Taylor-Link Oil Company, and C. P. Link of the same company of San Angelo, Tex., were in Fort Worth and Houston, Tex., on business matters.

* * *

Frederick G. Clapp of 50 Church Street, New York City, has been absent professionally a part of the winter on a visit to Egypt and other parts of the Near East and has rejoined his family in Paris.

* * *

H. C. Weldon, of the Tulsa headquarters of Shell Petroleum Corporation, is in Muskegon, Mich, completing arrangements for the collection and shipment of Dundee crude by boat from the Michigan Field.

* * *

Bert Pidiocke, Houston, Tex., pilot, has joined the flying staff of the Texas Pipe Line Company and flew the past week from Houston to New York City piloting Burt Hull, president of the company, to that city and other points in the east.

Jack Watt, formerly scout for the Henshaw Oil Company at Fort Worth, Tex., has joined the Lion Oil Refining Company of El Dorado, and will scout South Arkansas, North Louisiana and Mississippi areas.

* * *

G. Allan Hancock, vice president of the Dominion Oil Company, recently opened the Hancock Foundation College of Aeronautics at Santa Maria, Calif., which he endowed for the purpose of promoting aviation.

* * *

Karl E. Young, geologist for Rycade Oil Corporation, Houston, Tex., has resigned effective June 1. Mr. Young will go to California planning to take several years' additional work in the University of California.

* * *

John P. Kerr, consulting petroleum geologist, has recently returned to San Francisco from an extended trip to the State of Washington, where he carried on investigations for oil and gas in the interest of Washington clients.

* * *

Harry Meredith, head of the land department for the Atlantic Oil Producing Company, San Angelo, Tex., made a trip into Dallas, Tex., where the company has its head offices. Mr. Meredith was accompanied by Mrs. Meredith.

* * *

C. L. Coppage, vice president and director of sales of The Texas Company of California, recently announced his retirement after having spent more than 20 years in the petroleum industry, preliminary to an extended tour of Europe.

* * *

Dr. A. Wade Schwitalla, of the crude oil purchasing department of Shell Petroleum Corporation, and G. G. Woodruff, who recently announced his resignation as vice president of the corporation, were visitors to the Muskegon, Mich., Field.

* * *

W. S. Farish, president of the Humble Oil & Refining Company of Houston, Tex., U. de B. Daly of the Shell Petroleum Corporation, St. Louis, Mo., and T. J. Donoghue, vice president of The Texas Company, Houston, Tex., were in Fort Worth recently.

* * *

E. H. Buckner, president of the Houston Oil Company, C. B. McKinney, general manager, and F. W. Kirk, superintendent of the Houston Pipe Line Company, made a short trip over the companies' holdings in Southwest Texas and along the Mexican border.

* * *

W. F. Simrall, president of Cincinnati, Ohio, petroleum products distributing company which bears his name, is in Muskegon, Mich., completing preparations to run boat shipments of crude to the Lemont Refining Company plant at Lemont, Ill.

* * *

Dr. H. P. Bybee, geologist with the Dixie Oil Company at San Angelo, Tex., and formerly professor of geology in the Texas State University, addressed the San Antonio section of the American Association of Petroleum Geologists, recently at the first of their monthly dinners.

* * *

Carl Gilmore, of the Murchison Oil Company, Dallas, Tex., spent several days in the Muskegon, Mich., Field recently, surveying lines from producing oil wells to the location for a proposed gasoline absorption plant which Murchison Company officials plan to erect in the Michigan Field.

* * *

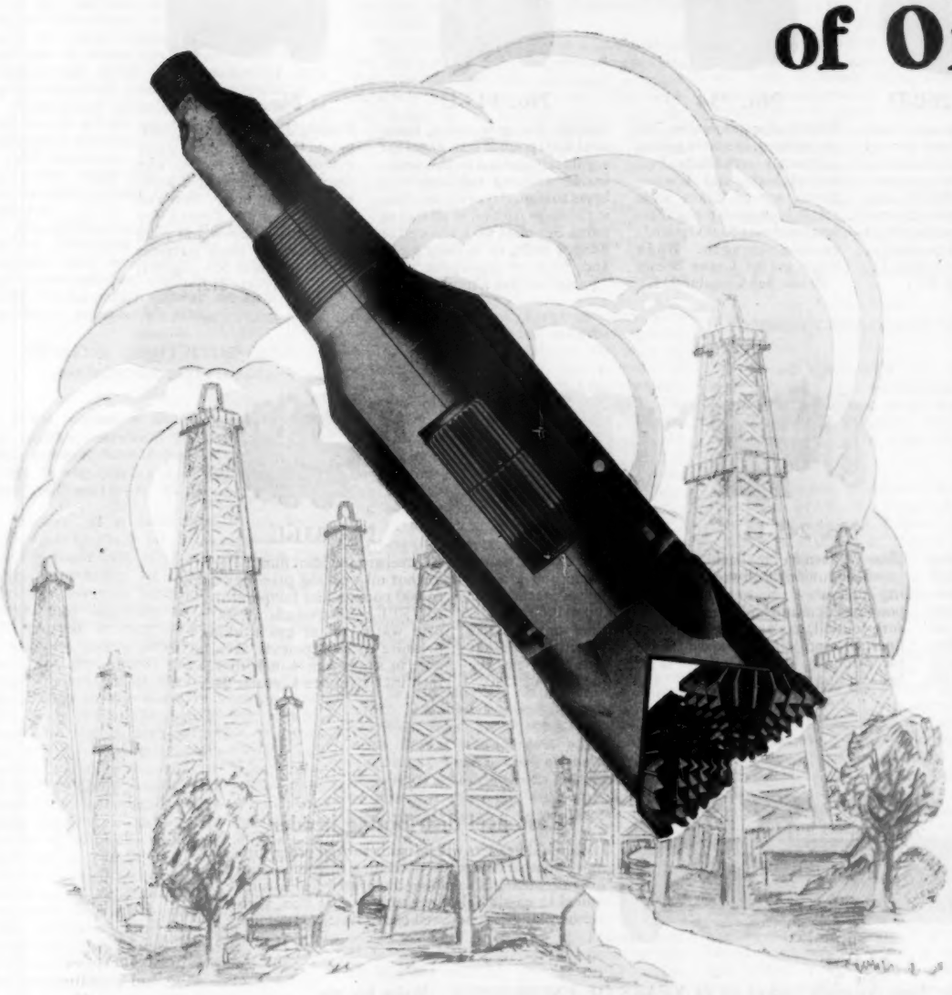
L. C. Fay, manager of the Mid-Continent pump division of Byron Jackson Company, has returned from Houston, Tex., where he opened a branch of the company at 1915 Post-Dispatch Building. W. R. Layne is in charge of the pump division at this branch, and Earl Hagy is in charge of oil tools division.

* * *

Frank Carr, vice president of the Leland Equipment Company, has taken up his residence again permanently in Tulsa. For the past eighteen months Mr. Carr has been located in Dallas, Tex. Mr. Carr is well known in Oklahoma and his many friends will be glad he has returned home. He is taking charge of the truck equipment department and directly under his supervision will be the management of the new Oklahoma City branch as well as that of Dallas. A. F. Kennedy is now branch managar in Dallas.

Burkburnett—

has produced a total of 116,000,000 barrels of Oil.



The Corsicana Oil Company (now the Magnolia Petroleum Company) drilled the discovery well at Burkburnett. This well was on the Schmoker ranch and was brought in July 8, 1912, for 85 barrels at 1837 feet.

C. C. Bradford discovered a shallow pool four years later on the Cropper tract. In 1918, the Fowler Farm Oil Company brought in the Townsite Pool, the initial well flowing 1600 barrels, and drilling on town lots followed.

The Burk-Waggoner Oil Company brought in a 2750 barrel well on the Waggoner ranch nine months after the discovery of the Townsite pool. Extensions of Burkburnett field were later made by Tex-homa Oil & Refining Company's discovery of a 1300 ft. pay sand.

In 1920 Burkburnett produced a total of 29,890,000 barrels of oil. Up to Jan. 1, 1929, this field had produced a total of 115,734,000 barrels.

This is but one of the many great oil fields that have been developed, by the rotary process of drilling, in the last twenty years. Drilling methods, tools and equipment have advanced in keeping with the requirements of this great industry.

Hughes Tool Company, through the invention of its rock bits, core bits, disc bits, drilling valves, and tool joints, has been privileged to play an important part in increasing drilling speed and efficiency and lowering the cost of drilling throughout the rotary fields of the world.

Supreme in HUGHES TOOLS *Performance*

HUGHES TOOL COMPANY

Service Plants:
Los Angeles, Calif.
Oklahoma City, Okla.

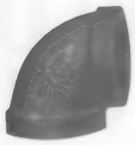
Main Office and Plant:
HOUSTON,
TEXAS

Export Office:
Woolworth Building
New York City

Crane equipment for oil and gas pipe lines

No. 760-D

One of a group of cast steel screwed fittings with long thread lengths. Tested at 800 pounds hydraulic pressure. This pattern is made for casting in steel and should not be compared with cast steel fittings made from ordinary cast iron patterns. See Catalogue 51, page 407.



No. 260-D

One of a group of cast steel fittings for oil vapor pressures up to 550 pounds, temperatures to 900°F., and cold oil, gas and water working pressures up to 2000 pounds. See Catalogue 51, page 407.

No. 754

Double disc gate valve, 700 pounds test. Discs are guided accurately in the body. Ferrosteel body and bonnet. Stems are of Crane stem metal, high grade manganese bronze of over 50,000 pounds tensile strength. Body rings are of Crane Steam Brass. See Circular 212.

No. 343-E

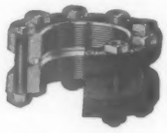
Double disc gate valve, ferrosteel 1000 pounds test. Discs are accurately guided in the body. Inside wedging mechanism is brass to iron. Accurate machining reduces friction in all sliding parts. Supplied with screwed or flanged ends, in outside screw and yoke or non-rising stem patterns. See Circular 212.

No. 215-H

Double disc gate valve, 1600 pound test, for oil, gas or water Ferrosteel body, bonnet and discs. Discs are guided accurately in the body. Screwed end valves are lipped for lead. Outside screw and yoke or non-rising stem patterns can be supplied. See page 14, Circular 212.

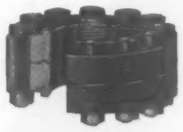
No. 266-E

Heavy pattern malleable iron cross fitting, made in ¼-inch to 16-inch sizes. Particularly adapted for exacting requirements of the oil industry. Long thread lengths and heavier bands than commercial fittings. For use on high pressure cold oil, gas and waterlines. See Catalogue 51, page 339.



No. 245-H

Heavy pattern malleable iron flange union for oil working pressures up to 800 pounds. For use on high pressure cold oil, gas and water lines. Ground-joint seat and exceptionally long threads. See Catalogue 51, page 339.



No. 247-H

Ferrosteel hydraulic flange union; tongue and groove. Good for cold oil, gas or water pressures up to 1000 pounds. Suitable sizes for all oil, gas and water purposes. Gasket is extra with this type. See Catalogue 51, page 340.

No. 831-E

All steel ground joint flange union for hot oil working pressures up to 600 pounds and temperatures to 750°F.; 400 pounds at 900°; cold water, oil or gas working pressure to 1200 pounds. Available in sizes from 4-inch to 12-inch inclusive. See Circular 212.

Cast steel distributing header

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Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry. Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

TESTING PROPERTIES AND SOURCE OF ICHTHYOL

What method of analysis may be used in testing petroleum for ichthyol? Has this product been found in crude petroleum in any paying qualities in wells of the Southwest?—R. E. G.

Ichthyol is a substance which looks like a heavy thick oil. It is almost black, with a slight cast of brown, in color. Unlike the ordinary oil, it is soluble in water. The common source of ichthyol is a bituminous shale found in Austria and the deposit is very rich in fossil fish, hence the name, ichthyol, which is related to the Greek word meaning fish. The preparation of the product includes distillation of the shale in vacuum, usually with the application of superheated steam, so that a thick yellowish to brown oil with a slight bituminous odor is obtained. This oil contains a large quantity of sulphur, possibly 2.5 per cent or more, and some indication of the sulphur content is to be observed in the traces of sulphurous acid which may be detected in the odor. The crude oil as obtained from the shale by distillation is sulphonated, neutralized with an alkali—ammonia is largely used for this, and then separated from the chemicals. The sulphonating process increases the sulphur content four or five times that of the crude oil.

The crude ichthyol oil may have a specific gravity 0.865 and boil between 212 and 490 degrees Fahrenheit. The various fractions have the characteristic odor of petroleum somewhat diluted with that of the mercaptans. When the vapors are led into concentrated sulphuric acid, a violet to blue color is produced.

When testing a product which is supposed to be ichthyol the easiest test to apply is that of solubility in water. The water solution has a brown color with fluorescence. It is also soluble in a mixture of equal parts of ether and ethyl alcohol.

There is a preparation sold under the name ammonium sulphoichtholate, which is a substance of uncertain chemical structure, and is used in medicine especially for the treatment of burns, and to some extent for eczema and other inflammations of the skin.

We do not know of any crude oil in the Southwest which contains ichthyol.

VISCOSITY OF KEROSENE

The viscosity of a kerosene is given to me as 400 and I want to know what instrument is used for getting this and just what it means?—T. R. B.

The viscosity of kerosene, and sometimes gasoline, is determined by means of the Saybolt thermo viscosimeter. Details of the instrument and the method for using it were given by H. T. Bennett in Petroleum Age, December 15, 1921, page 26. Another paper on this instrument is that of Fortsch and Wilson, Industrial and Engineering Chemistry, Vol. 17, 1925, page 281.

The thermo viscosity is a number about ten times the number of seconds required for the oil to rise through a glass capillary for a fixed distance. The reading made in a determination must be properly adjusted to conditions. A reading of 32.4 seconds is converted to 324 and when properly corrected becomes 400 thermo viscosity.

As a general rule the lower the gravity the higher the thermo viscosity. Mid-Continent kerosene ranges in gravity, say from 40 to 43 A.P.I., and the thermo viscosities of this grade from 320 to 545.

The viscosity of kerosene may give some indication of what may be expected in the way of flow through the wick of a lamp. Consequently the test is of value in eliminating oils of high viscosity because they do not flow easily in the ordinary lamp and may give poor results for illuminating purposes. However, the standard burning test is considered to be a more reliable method for determining the burning quality of an illuminating oil.

GUMMY RESIDUE AND COLOR OF GASOLINE

Would like to ask why an acid treated gasoline which has been given a doctor treatment and is doctor negative should form a heavy black gummy residue in the flask on redistillation? Would also like to ask why an acid treated gasoline which has been neutralized with clay or ammonia has good color stability but when doctor treated goes off color after standing? This is true on both first run and rerun gasoline which has caused more or less worry on our part and hope you may be able to give us an idea or two.—H. C. T.

While considerable has been written about the formation of gum and the color of gasoline, the conclusions are of such a general character that it is difficult to make application of the established facts without all details concerning the oil and the refining process. The purity and strength of the acid, doctor, and other chemicals are important. It is the common practice not to treat gasoline with acid because a better product is usually obtained if the acid treatment is omitted. When acid is required, where the composition of the product warants its use, the operator knows that while the larger quantities may produce a gasoline with less color and less gum great care must be observed in the addition of the acid. If too much acid is added at one time the color is not so good as when a smaller quantity is used, or the equivalent quantity added in a series of batches. Another factor is the concentration of an acid. An extreme, for example, is the use of oleum in the manufacture of white oils. These cannot be made with the ordinary concentrated sulphuric acid.

The distillation conditions are important, especially the use of steam and the character of the fractionation. The modern towers have done much to improve the quality of the product in that the heavy ends which often contain color and gum-forming bodies, are eliminated.

A perfectly colorless gasoline may be made which upon storage and exposure to air and light will go off color and show a deposit of gum. This reaction is thought to be due to oxidation. The compounds formed are reported to be closely related to aldehydes.

You will find many suggestions in an article by B. T. Brooks, The Chemistry of Gasolines, Industrial and Engineering Chemistry, Volume 18, page 1,198, 1926. According to this authority—"The first step in the formation of gum in cracked gasolines is the formation of organic peroxides. . . . . The fluid gum observed in gasoline consists mostly of organic peroxides, fluid aldehydes, and ketones; old fully oxidized resin, after expelling volatile products, is resin acids. Small proportions of easily oxidizable hydrocarbons, such as diolefins, promote the formation of large proportions of gum. Oxidation of ordinary olefins with gum formation also occurs, but at a very much slower rate. The most common cause of the discoloration of gasoline and kerosene is the development of acidity. Sulphur dioxide and its oxidation to sulphuric acid is the most common cause of this acidity."

EMERSON CRACKING PROCESS

I would appreciate any information that you may give concerning the Emerson cracking process or where the information may be obtained? What company made the unit and what is their address?—L. F.

The Emerson process is based on the invention of V. L. Emerson, which is also known as the Impact System according to a series of United States patents, the first of which appears to be No. 1,367,807. There is a short description, with a list of patents, of this process in Motor Fuels, by Leslie, pages 382, 383, and 384.

Leslie shows one illustration and describes the apparatus as in the following: "It consists of a small pressure still of the Heine boiler type operated in conjunction with the impact injectors, tubular partial condensers, and tubular final condenser. The raw material enters the tank beneath the partial condenser. The reflux condensate also enters this chamber. Hot vapors from the pressure still are expanded through a valve into the impact device. This consists of a pair of opposed nozzles so arranged that they function as injectors. The expanded gas as well as oil drawn by the injectors from the tank are thus commingled and the liquid atomized or broken into the finest particles by what is called attritive effect of the kinetic energy of the gas. It is claimed that the kinetic energy is here converted to other forms of energy, probably in part electrical, that serves to dissociate and decompose the large hydrocarbon molecules. Hence the name impact process.

"The mixture of gas and hydrocarbon mist is forced into the liquid in the tank, above mentioned, so that its heat content is utilized in heating and distilling the lower boiling fraction of this liquid. The vapors pass from the tank through the partial condenser where the heavier portions are condensed, and the naphtha passes to another condenser. Liquid from the tank is pumped to the pressure still where it is introduced through a series of jets that are immersed in the liquid. The purpose of this procedure is to 'deliver the oil with great velocity downwardly into the passages between the partitions of the rear header—thereby producing a rapid circulation of the oil undergoing distillation.'"

Further details of the process may be obtained from the patents listed and from the article by L. S. Paddock in Petroleum Age, March 1 1922, page 22.

The largest installation of which we have knowledge, was that of the Gulf Refining Co., Pittsburgh, Pa., at their Port Arthur, Tex., refinery. Twelve stills were built. The drum of each still had a capacity of about 20 bbls., and were operated under a pressure of 125 pounds with a temperature between 700 and 750 degrees Fahrenheit. The run was about 36 hours and with cooling and cleaning time the complete cycle was around 55 hours. The production was said to be 1 bbl. of 50/52 naphtha per hour during the 36-hour period. The naphtha contained 70 per cent of 56 gravity gasoline.

SKIMMING, TOPPING AND STRIPPING STILLS

What kind of stills are used in a refinery where the operation is known as skimming or topping? Will you tell me just what this kind of operation means? Where can I obtain a list of the skimming refineries in the United States?—S. B. W.

The words skimming, topping, and stripping, as used in connection with the refining of petroleum are synonymous. The meaning is that the distillation proceeds only to the point where the lighter products are obtained from the crude oil. These products do not require so expensive and complicated equipment as is required for the separation and purification of the heavier products, such as the lubricating oils, wax, and other materials. The normal products of a skimming plant are gasoline, kerosene, distillate, gas oil, and the residue, usually sold as fuel oil. The gasoline and kerosene are the only products which are given additional treatment for the removal of impurities.

The skimming operation is generally conducted in a battery of shell stills, which are cylindrical boiler-like vessels, arranged and connected so that the oil will pass from one still to the next in a continuous manner while being subjected to increasing temperatures. The same operation is practiced in some refineries by means of pipe or tube stills and in this form of still the oil is passed through a system of tubes placed in a furnace. The principle involved being similar to that of the ordinary tube boiler for the manufacture of steam.

This form of operation is described by A. D. Smith on page 326, Handbook of the Petroleum Industry, by David T. Day, Volume 2, as in the following: "The lighter crudes are usually skimmed or stripped in standard stills, occasionally dry-run, but generally with a small amount of bottom steam, so as to agitate the still contents gently and prevent the deposition of coke, as well as to enable the distillation to proceed more smoothly and with less expenditure of directly applied fuel. The stills used for this purpose vary from 36 inches in diameter by 15 feet to units 14 feet in diameter by 40 feet long. . . . It is common practice in this country to connect six or seven stills in a circuit. . . . In general a continuous battery of stills is built at grade, and flow is secured by connecting lines which leave successive stills at regularly decreasing levels. A charging and a pumping-out pump control the first and last stills respectively. Each still of the series is provided with by-pass valves, so that it may be cut out of continuous service, run down to fuel, or pumped out and cleaned as occasion requires."

A list of the petroleum refineries in the United States was published in The Oil and Gas Journal, March 7, 1929. In this list the skimming plants are designated by the letter S.

Trends in Natural Gasoline Storage

Capacity Required, Safety, Initial Investment and Operating Cost Are Among Factors To Be Considered

By G. M. Davidson
*Empire Oil & Refining Co.**

Judging by the standard of modern natural gasoline plant design, it would appear that more thought might be given to storage facilities.

The storage problem for a plant can be presented under the following headings:

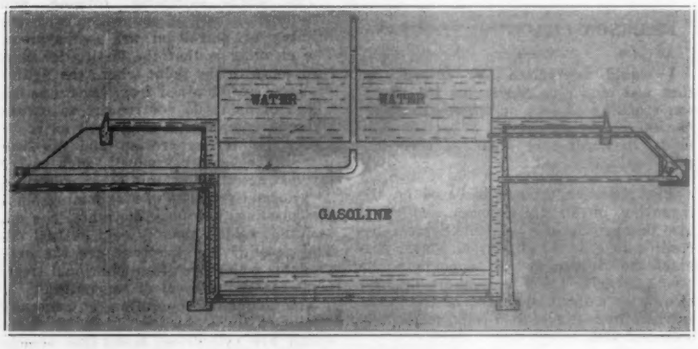
1. Amount of storage capacity required.
2. Safety of the installation.
3. Most economical type of storage tanks.
4. Gauging devices, piping, fittings, etc.

When the plant product is being shipped by rail, experience from the manufacturing point of view indicates that storage should be provided for 30 days' production to allow for minor irregularities in shipping schedules and transportation. This amount of reserve storage is hardly sufficient when several grades of gasoline are being made. Presumably plants with contracted outlets by pipe line deliveries need only provide storage for gauging and emergency interruptions of pipe line service.

There is almost a universal adoption of the 10-foot by 40-foot 50-pound test pressure horizontal tank for natural gasoline storage. This tank is about as large as can be utilized economically. Size 11-foot by 42-foot tanks have been tried but are more difficult to transport, handle and install and are subject to considerable distortion when filled. The 10-foot by 40-foot tank has come into such common usage in the Mid-Continent that fabricators generally carry steel for the heads and shell in stock. The shell is generally one-fourth inch plate, the heads are five-sixteenth inch or three-eighth inch dished to a radius equal to the diameter of the tank. The shell is made up in five rings. The tanks are built to withstand a hydrostatic test of 50 or 60 pounds per square inch and relief valves are set for working pressures of 20 or 25 pounds per square inch. Apparently there is a big difference in opinion in the type of joints used in fabricating these tanks. Some companies specify a riveted and caulked joint. Others are depending upon a double weld lap joint and some use a combination of both.

Tanks of this size are subject to distortion both in the shell and heads. Breathing of the tanks have been the source of cracking welds, and in some instances heads have parted from the shell completely. Riveting and caulking is subject to leakage due to the flexing of the tank. Rivets must be tightened and joints recaulked whenever the tank is moved. The welding art has made some wonderful strides and there is no reason, excepting the possible lack of experience and conscientiousness of the fabricator, why welding should not be used. In a combination of riveting and welding of plates used in these tanks, it is doubtful if the riveting serves for any but a safety factor in the event of a weld failure.

*Annual meeting.



Bottomless water seal storage tank.

Transporting Tanks

A tank such as described above is awkward equipment to transport. Hauling contractors are generally in demand when a plant is building in a new oil field and these tanks are not generally handled as they should be. The tank in being rolled into position will often be supported by projections from the shell, such as the manhole. Manholes are necessary for fabrication and internal inspection. The boiler type manhole is to be preferred and the tank should be shipped with the yokes and cover inside the tank. Slow delivery generally eliminates this type of manhole. To overcome the objection of putting a projection on the shell some companies put the round external type manhole in the head. An inside and outside gas weld is recommended for this joint.

Piping flanges are provided for relief valves and connections for filling, emptying, water drainage and collecting of vapors. As a rule the tanks are gauged with the use of gauge glasses. Care should be exercised to see that the collars welded in for this purpose are horizontal. They should be located on the tank itself and spaced so as to provide for a standard length gauge glass. Accurate gauges are difficult to obtain when the gasoline in the tank is unstable. Bubbles forming in the gauge glass will vary the apparent liquid level.

In an attempt to eliminate this difficulty some companies have used gauge glasses on a vertical pipe which was connected to the bottom and top of the tank. Gauges with such an arrangement are often in error. Floats and measuring tapes have been tried, but seem to be unreliable. One of the best forms of tank gauging devices is a tube projecting through a packing gland at the top of the tank. A petcock at the top is opened when gauging and the liquid level is noted when the bottom of the tube is at the liquid surface, noted when gasoline flows from the valve. For convenience two tubes are used, one measuring the upper 5 feet of the tank, the other the lower 5 feet.

Tank Supports

Manufacturers of these tanks suggest five supports in setting such tanks. In general only four are used, and where there is even bearing that number will serve satisfactorily. Supports are usually made of concrete about 12 inches thick and extend one-fourth to one-third the circumference of the tank. Due to the possibilities of corrosion and to take up minor unevenness of bearing several sheets of tar paper should be used between the support and the tank. Steel saddles can be used which fit the periphery of the tank and rest upon a level pier. Tanks generally outlast the plant, and these saddles have the merit of reclaim value.

The tanks should be given a coat of metal preserving paint which if put on at the shop should be specified as to kind and manner of application. The tanks should be given a final coat of paint which will reflect heat.

Insulation has been tried on such tanks and found to have a material effect in reducing losses. Insulating with hair felt or asbestos is an expensive job. Some manufacturers are covering their storage with earth, which makes an excellent insulator, though great care should be exercised to protect the tanks against corrosion.

It is the practice with a number of companies to correct all tank gauges for temperature. In this connection it should be noted that the temperature changes affecting the volume of the tank content also changes the dimensions of the tank to effect a small correction. The distortion of the tank due to the liquid head is another factor affecting the calculated gauge table.

Safety Recommendations

The matter of first consideration is the location of the storage with respect to the plant. It should be removed as far as possible, preferably at a lower level. The joint at the shell and head is the weakest part of the tank and in all probability would be the first to part. For what added time it would mean in case a head joint failed completely it might be advisable to install the tanks so that the contents will not be directed toward the plant nor homes. Fire walls have not been used generally in the Mid-Continent, but should be considered. Automatic safety gauge cocks have proven worth while in fires.

Relief valves should be given more serious considerations. Relief valves have been provided generally for relieving excess vapor pressure of the contents and for excess pressure due to operation. For these circumstances a 2-inch relief valve has served. The destruction and personnel risk in the possibilities of a fire appears to warrant relief valves to meet this situation. The Bureau of Explosives through John F. Fetterly has published a bulletin entitled, "The Determination of the Relief Dimensions for Safety Valves on Containers in Which Liquefied Gas is Charged and Where the Exterior Surface of the Container is Exposed to a Temperature of 1,200 Degrees Fahrenheit."

This formula is given for uninsulated containers as

$$A = \frac{[(B \times 3.1416 \times U) + 2E]}{L \times P \times 50} \times C \times (t_1 - t_2) \sqrt{\frac{W_2}{W_1}}$$

A=Relief area of the safety valve.
D×3.1416×N×Sine valve seat angle.

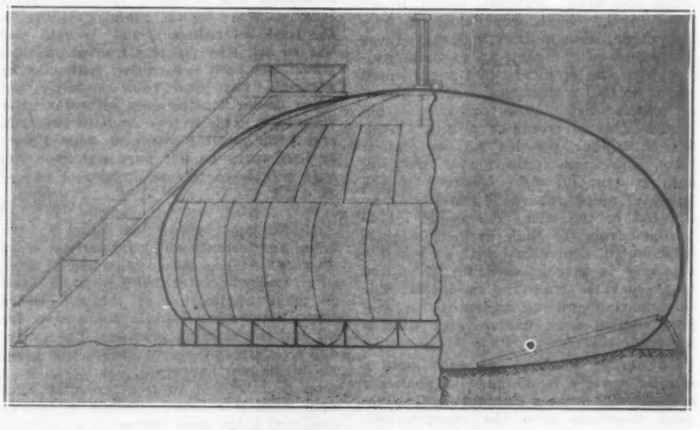
B=Outside diameter of the container in feet.
E=End area of the tank.
U=Length of the container in feet.
C=Heat transfer in B.t.u. per square foot per hour per degree Fahrenheit temperature difference between 1,200 degrees Fahrenheit and the temperature of the container contents when at the pressure at which the safety valve is set to open.

$$C = \frac{t_1 - t_2}{A}$$

t_1=Temperature in degrees Fahrenheit at outside of container.
t_2=Temperature in degrees Fahrenheit of contents of the container when at the pressure at which the valve is set to open.
W_2=Density of steam in pounds per cubic foot at relief pressure.
W_1=Density of vapors in pounds per cubic foot at relief pressure.
W=The latent heat of vaporization of the liquid portion of gas in B.t.u. per pound weight at relief pressure.
P=Absolute pressure pounds per square inch at which relief valve is set to open.
D=Diameter of savety valve.
N=Lift of valve in inches.
A=62.5 plus 20 T.
T=Thickness of steel wall of the container

Calculations show that two tank car relief valves set at 25 pounds per square inch are necessary to relieve a tank such as we have been considering under the conditions and assumptions made. With a knowledge of the spring characteristics used in these valves the tank

(Continued on Page 128)



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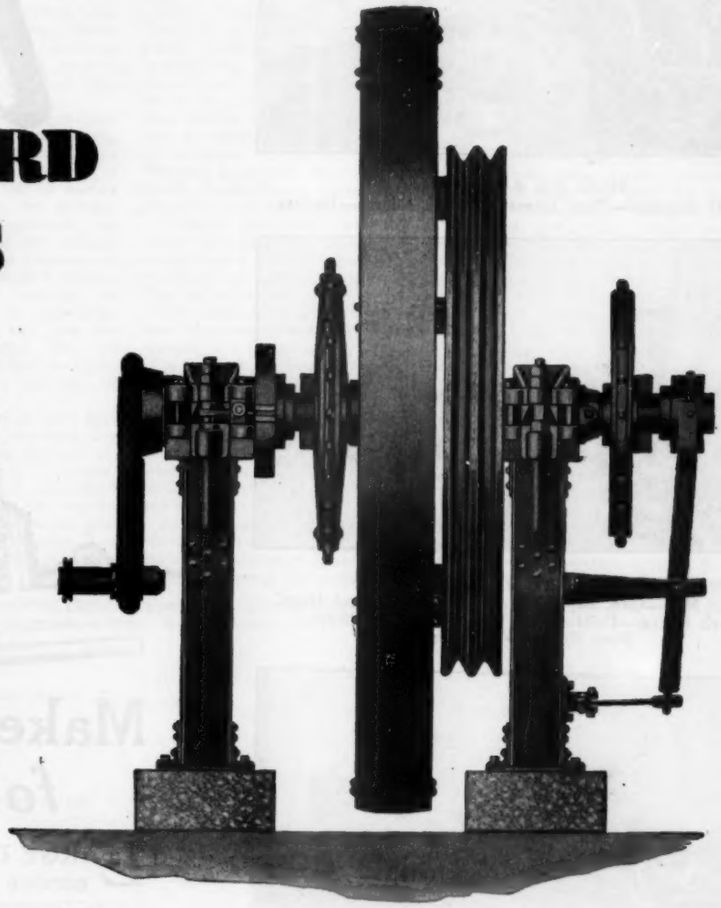

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Factors in Natural Gasoline Markets

Proper Merchandising Is a Co-ordination of Wise Construction Programs, Plant Control and Consumer Service

By A. T. Scherer
Sinclair Oil & Gas Co.*

This paper is intended to cover in the abstract the procedures and practices of the natural gasoline industry in so far as they affect the marketing of its commodities, and particularly to set out existing policies and practices for the guidance of newcomers. Such features as plant control and laboratory control are sketched from a marketing viewpoint, and the writer refers you to publications and other papers dealing in a specific manner with operating problems.

Expectancy of Profits

Deserving of primary and possibly prime mention, seems to be the industry's policies with reference to the inception of a plant. Major companies have long since refused to be governed by the old idea that a plant must be constructed whenever and wherever a quantity of gas becomes available. Better understanding of the marketing of our products has led to a better understanding of just what constitutes a profitable construction program. Plants are no longer built just to knock a certain percentage of liquid out of a given amount of gas without regard to its quality or marketability. Nor are plants built without the assurance of a continued gas supply commensurate with the investment.

We are ill advised if we draw up our construction program based upon the current markets of September or March, and just as poorly advised if we base our program upon the markets of 1922 or 1928, or any other year. While markets are discussed at great length in connection with a proposed plant, in my opinion, deserving of more earnest consideration than markets, are a multitude of other factors, such as existing and potential gas supply, relative cost per gallon of construction, operation and treating, freight rates, marketing connections, etc. I would say that plants constructed without the proper consideration of the foregoing have kept more of them in the red than socalled low markets.

It has often been proved that haphazard, ill advised or promiscuous construction programs carry their own hangover of periodical low markets. I say "periodical" because it is known that markets based upon the average cost of producing any commodity affected by the law of supply and demand will, over a period, become adjusted to a fair operating level. Human nature, capital and ambition all conspire to either build and operate, or discourage the building of, dismantle and junk the facilities of supply whenever the net back is respectively higher than accepted expectancy, or lower than the cost of production.

Good judgment, therefore, dictates that in as much as we have available for mathematical determination factors affecting the cost per gallon of supply, as a guide on one side, and are forced to admit that markets will not exceed a net back over a period of more than a fair return on our most diligent construction operation and marketing efforts on the other side, it may be written that, over a period, no plant which is not the result of a combination of thorough study, good judgment and maximum efficiency will survive economically.

Uniform Plant Control

Efficient marketing of our commodities depends greatly upon uniform plant control. I would rather refer to that which operating departments designate "uniform plant control" as "controlled plant flexibility." Merchandising our commodities becomes exceedingly more simple and profitable when the plant is so constructed and manned that it may readily, and without loss of production or efficiency, be adjusted to seasonal or overnight atmospheric temperature changes, temporary shortages of gas or water, shutdowns, or conversion from the production of one grade to another.

Without controlled flexibility it appears that flexibility instead of control predominates, and uncontrolled flexibility absorbs a full measure of potential profits. The production of either large or small plants, marketed directly or through outside channels, frequently becomes distressed, not by reason of the fact that it is natural gasoline, but more particularly by reason of the fact that it is one or the other of the grades. A seasonal intermission in refinery inquiries and commitments often finds our marketing facilities heavy with one grade while contract requirements and commitments have created a shortage of another.

At such times the seasonal price differential becomes out of line. For instance, a temporary healthy demand for grade "C" brings the price on that grade to a small fraction of a cent under "BB" and "AA" and almost immediately refiners having a preference for the higher recovery grades will revise their inquiries. Within a surprisingly short time the seasonal differential is back into existence. It would seem desirable then to have sufficient flexibility of control to enable us to convert our current production from one to another grade instead of hewing to the line until economical disparity exists between the prices of the various grades. Also, the buyer would be better satisfied and more likely to buy the grade best suited to his particular natural gasoline requirements if he were fairly certain that a differential which exists today would remain substantially the same over 30 to 60 days.

Atmospheric temperatures influence the percentage of light ends which may be recovered, but controlled flexibility will do much to overcome the irregularities in the finished gasoline.

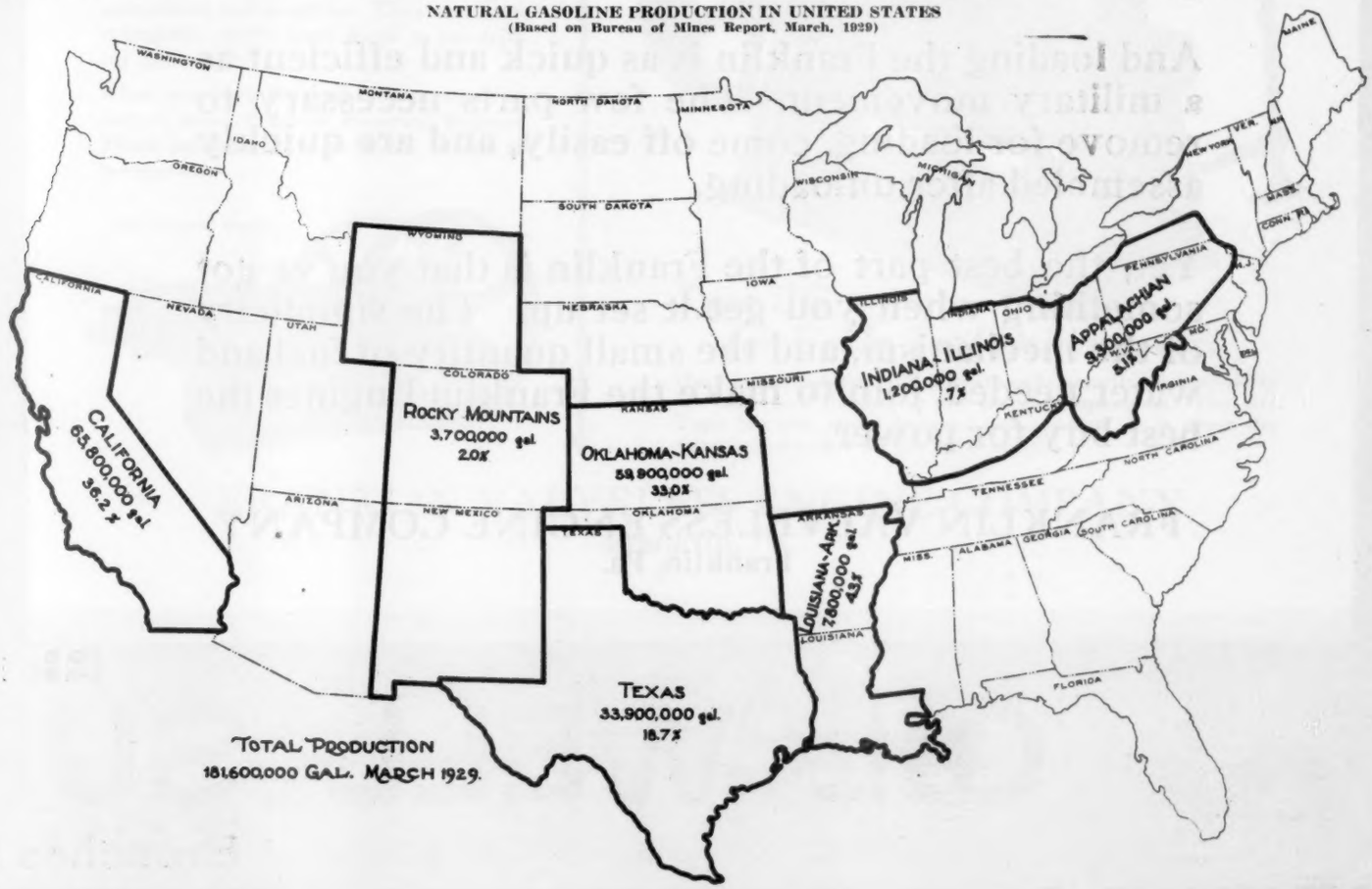
Laboratory Control

I recently made the remark to one of our operators that I remembered the time when laboratory control amounted to checking the residue gases and making a distillation of the finished product, and that the operating department was promptly romped upon with reference to the per cent of gasoline remaining in the tail gases, while the sales department was handed the results of the distillation with the instructions to dispose of the cargo "as is." This operator countered to the effect that I was probably a novice in the business and volunteered that laboratory control in the old days

(Continued on Page 132)

*Annual Convention Natural Gasoline Association of America, Tulsa.

NATURAL GASOLINE PRODUCTION IN UNITED STATES
(Based on Bureau of Mines Report, March, 1929)



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One truck—that's all. And no overloading or straining of the truck.

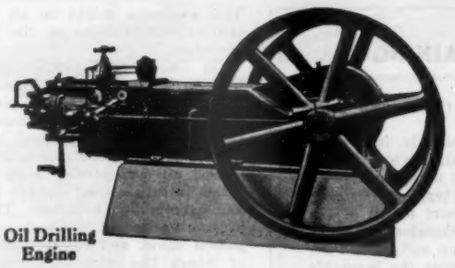
The Franklin Engines are not bulky. Good material and scientific design give the Franklin Engine greater strength without useless weightiness.

And loading the Franklin is as quick and efficient as a military movement. The few parts necessary to remove for loading, come off easily, and are quickly assembled after unloading.

Yet, the best part of the Franklin is that you've got something when you get it set up. The simplicity of the mechanism, and the small quantity of fuel and water needed, join to make the Franklin Engines the best buy for power.

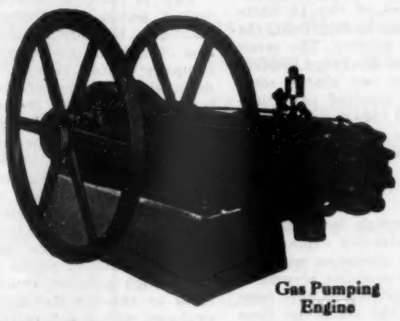
FRANKLIN VALVELESS ENGINE COMPANY
Franklin, Pa.

The FRANKLIN Engines



Oil Drilling Engine

New type of oil drilling engine for western and mid-continent service. An engine combining ample power, simplicity, quick starting, low fuel and lubricating cost.

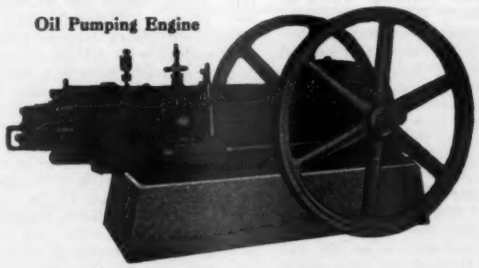


Gas Pumping Engine

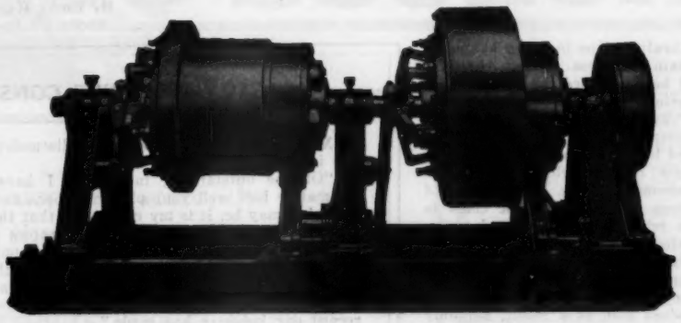
Franklin gas pumping engines are light, economical and powerful. They are interchangeable on the same block as gas drilling engines.

After you have finished drilling, move in one of these Franklin Pumping Engines. These pumpers come in 30, 40, 50 and 75 horsepower.

Oil Pumping Engine

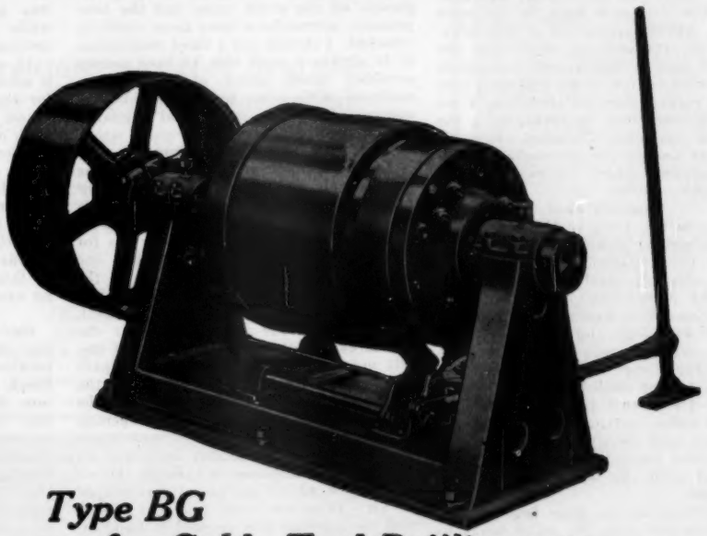


Many Features Put FRANKLIN'S NEW LINE far Ahead of Old Style Clutches



Features of the 2 SD Drilling Clutch

Two speeds in either forward or reverse—all bearings enclosed—run in oil or grease.
All brake band and clutch discs adjusted without stopping the engine.
All brackets, bell cranks, toggle arms, brake cranks, levers, driving discs, spiders and sliding sleeves made of steel.
All similar parts of clutch interchangeable.
Belt driven—no shaft breakage.
The 2 SD Clutch will pull the largest bailer without faltering.



Type BG for Cable Tool Drilling, etc.

Here is a clutch that will operate satisfactorily and smoothly for cable tool drilling or for pumping operation. The BG Type has one speed forward and reverse. It is much the same construction as the 2 SD clutch.

FRANKLIN VALVELESS ENGINE COMPANY

Franklin, Pa.

Reduce Hazards of Gasoline Industry

Co-operative Study of Fire and Explosion Problems Minimizing Losses in Natural Gasoline Plant Operation

By Emby Kaye
Skelly Oil Co.*

The natural gasoline industry has made no uncertain progress during the last decade. It has increased the efficiency of its extraction processes, improved the quality of its products, and has reduced its manufacturing costs to an extent that has enabled it to exist in the face of radical changes in the price structure of light petroleum products. Not a little of this progress and reduction of costs is due to the relatively low fire and explosion experience in an industry, by common consent considered to be loaded with extraordinary hazards. The plant designer recognizes the imminency of fires and explosions and, as a result, not only surrounds his equipment with safeguards against these dangers but, as well, chooses and locates the equipment with a view to reducing to a minimum such risks as must necessarily remain by the very nature of the business.

In spite of the improvement in plant design, looking to the removal of some of the inherent risks in our industry, we have, nevertheless, a record of fires and explosions that have taken some lives and a considerable toll of property. While, no doubt, from all of them, some of us have taken a lesson, your program committee considered that it would be for the good of the industry if some of these cases were discussed here in an open meeting. The dissemination of this information, the throwing of light upon the causes of these accidents, will accomplish a worth-while object if we will each look into our plants, there to eradicate, if we will, such conditions as obtained in the situations hereafter discussed, both in this paper and in the discussion to follow—conditions which led to the disastrous results recited.

Tonkawa Case

Let us revert, first, to the case of an explosion several years ago at a gasoline plant in the Tonkawa Field. This was an oil-absorption plant powered with a 10-engined compressor unit. One unit was employed as a recompressor and was equipped with high and low-stage cylinders for recycling make tank and storage vapors. There were two headers in front of the battery of stock tanks, which were manifolded with each tank and controlled by three valves cutting out each header separately, and also the stock tanks. Ordinary crane valves of 125 pounds pressure, and with the wheel handle, were being used.

An operator at this plant began transferring gasoline from the make tanks to a storage tank at 7 a.m. A half hour later he began transferring gasoline from another storage tank to the loading rack line. Through error, the operator left a valve open from the loading line to the stock tank into which he was transfering from the make tanks. This caused the gasoline in the stock tank to overflow through the 2-inch vent into a 4-inch header, thereby filling the vapor scrubber tank, whence it entered the low-pressure accumulator, from which it was carried over into the high side of the recompressor. In this cylinder the valve area is small and the piston travel about 400 feet per minute with about one-thirty-second inch clearance. Liquids are not compressible; and when the liquid reached here and did not compress, something had to give. The discharge valve gave way, ruptured the wall, and took part of the cylinder casting with it. The liquid then sprayed into the engine room and filled it with gas, which exploded about 30 seconds after the rupture occurred. The result was the loss of three lives and the severe burning of four others; also the complete destruction of the main engine room.

The company reporting this explosion advised that its precautions against a recurrence consisted, first, of replacing the ordinary brass gates on the manifold with rising stem valves, which will show at a glance any valve that might be open; and, second, more rigid inspection when starting to transfer, since this accident could have been avoided had the gauge glasses on the stock tanks and the low-pressure accumulator been more carefully watched. I should add a third precaution. It is always a good idea to have master scrubber tanks ahead of compressors, equipped with some sort of liquid level control; but even so, eternal vigilance cannot be dispensed with.

Air and Gas Mixture

An instance of an explosion resulting from an air and gas mixture in a plant using gas for lift or repressuring work is the following:

This was a 10-unit plant using gas for lift purposes; and on this occasion, one unit had been down for repair. At the time repair was started, the intake line was closed ahead of the scrubber tank and the discharge line closed near the discharge header, with a 2-inch relief line left open. Through neglect on the part of someone, the 2-inch blowoff at the intake scrubber was left open (both the operator and mechanics deny opening this). When the equipment was again started, it was presumably operating on field gas and discharging through the relief lines until the equipment was purged of air. Then the relief line was closed, and the machine was allowed to build up to the approximate header pressure. At this time it was turned into the discharge header, and a violent explosion occurred, which ruptured the lines between the header and the high pressure cylinder of the machine, tore out the floor and part of the building, and injured one man seriously. Investigation disclosed that the machine had been building up pressure on air due to the 2-inch blowoff line being open in the bottom of the intake scrubber. There were several explosions of this same general character this year.

To prevent a recurrence of this kind, operators have been instructed to make sure all intake air connections are closed and the intake gas valve cracked, to allow the machines and lines to be purged with gas throughout before starting to build up pressure.

Seminole Explosion

On October 24, 1928, a company in the Seminole district experienced an explosion in an air-lift station employing eight 11 by 5 by 12 compressors and four 4¾ by 11 compressors, driven by 125-horsepower gas engines. The explosion totally wrecked the discharge headers, made of 3-inch tubing of 2,500 pounds test, together with all of the fittings connected on each end, but left the center intact. It also ruptured the discharge chambers on the high compression cylinders on nine of the 12 units and the discharge lines leading from the high cylinders to the headers. The seven lines leading from the discharge headers were also ruptured in two places, some 50 feet apart, and a hundred yards distant from the plant. Much sheet iron was blown from the building and the windows were all shattered. One man was killed and one seriously injured, while five others required medical attention.

In spite of a thorough investigation, it seems that no satisfactory explanation for the cause of this explosion could be found, other than the probable accumulation of lubricating oil from the compressor cylinders in the discharge lines which ignited from the high temperatures resulting from high compression of air. To remedy this situation, the plant has since been using soap solution to lubricate the high-compression cylinders, after it was determined that, by the reduction of this soap solution with intense heat, no explosive gases were produced.

Gas Leak Case

One the morning of November 23, 1928, one company suffered an explosion in a booster station located in the Seminole Field, caused by an excess of gas leaking into the compressor building, which at that time was poorly ventilated because the windows and doors were closed. Presumably, the gas leaks came from around stuffing boxes on piston rods and probably from gate-valve stems. An investigator talked with some of the operators who were running tour on this plant, and it was their view that the explosion was due to the ignition of the gas by static electricity. It is believed that previous to the explosion, the operator on tour had removed some of the valves in the compressor, and this condition was found after the explosion when the gas was still leaking through the compressor where the valves had been removed, even though the incoming gas had been shut off.

This booster station was operated by electric motors and it was also noted that the compensators had badly burned contact points and they were above the oil level. It was understood by some of the operators that on starting these motors, the compensators had a habit of sparking and flashing considerably due to the starting load, and, in all probability, the contacts were not submerged in oil. It is more than probable that the so-called static electricity was really a spark from the unsubmerged contact points.

It would appear that the design of the plant and equipment took into consideration the danger of ignition of gases in the compressor room and provided safety switches with contacts submerged in oil. This explosion might be an example of lack of watchfulness on the part of the operators.

On December 7, 1928, one company had an explosion in a Seminole Field booster station, when high pressure on a third stage unit was by-passed into the intermediate stage (second stage unit) which bulged accumulator tank bottom and caused all connections to be broken off, which in turn caused damage to the plant and surrounding buildings. The engineer became excited at the high pressure, by-passed same, and released about 1 mile of 6-inch line with high pressure in it into the intermediate compressor, which equipment is constructed for 300 pounds working pressure. The relief valve did not have the capacity to take care of the volume in the 6-inch line and something had to give.

Wrong Fittings

Late in 1928, one company at Wewoka had a serious explosion in a gasoline plant-gas booster station, resulting in loss of life and property. The reporting company stated that it did not know definitely the cause of the accident, but it further remarked that it was possible that fittings installed for high pressure had among them some standard fittings which were difficult to distinguish from high pressure fittings. That company instituted an investigation in all its plants to check all high pressure cylinders, together with lines and connections on these units, to make certain that all these lines and by-passes to and through which high pressure could come into by error or through leakage, were properly equipped with relief valves or fittings of sufficient tested pressure to withstand the service.

Our own investigation revealed that in any number of lift stations and plants, by-passes for emergency purposes were equipped with low pressure fittings because it was intended to flow gas from the low to the high side, but apparently no thought was given to the possibility of opening valves by mistake or of leakage by the high pressure shut-off valve on the by-pass, back into the low side, backing up ultimately a high pressure that would cause the bursting of the low pressure fittings, an eventuality fraught with many dangerous possibilities.

The absence or failure of check valves on air starting lines has resulted in a number of explosions. Gas has been found to leak by automatic air starters and sometimes the filling or failure of a drip behind the air compressor has permitted gas or oil vapors to be compressed and ignited by the heat of compression, or by the back-firing of an engine.

Loading Rack Vapors

A number of fires are on record, caused by the ignition of tank and loading rack vapors. Nothing new can be added to the story of safe handling of natural gasoline in a yard or at a loading rack. To do so would be to expatiate upon the obvious. Suffice it to say, it should always be done "tight," under pressure, and such vapors as are not retained should be conducted to a safe place and burned.

In this same class of cases come those where gasoline or gasoline vapors gravitated to the boiler house or engine room where they were ignited. It is a first principle with most companies to locate storage tanks in low places so that tank ruptures and burning gasoline would not be apt to endanger the balance of the plant.

It is obvious that the complete record of recent fires and explosions in our industry would look too much like a fire insurance agent's diary, to be given com-

(Continued on Page 132)

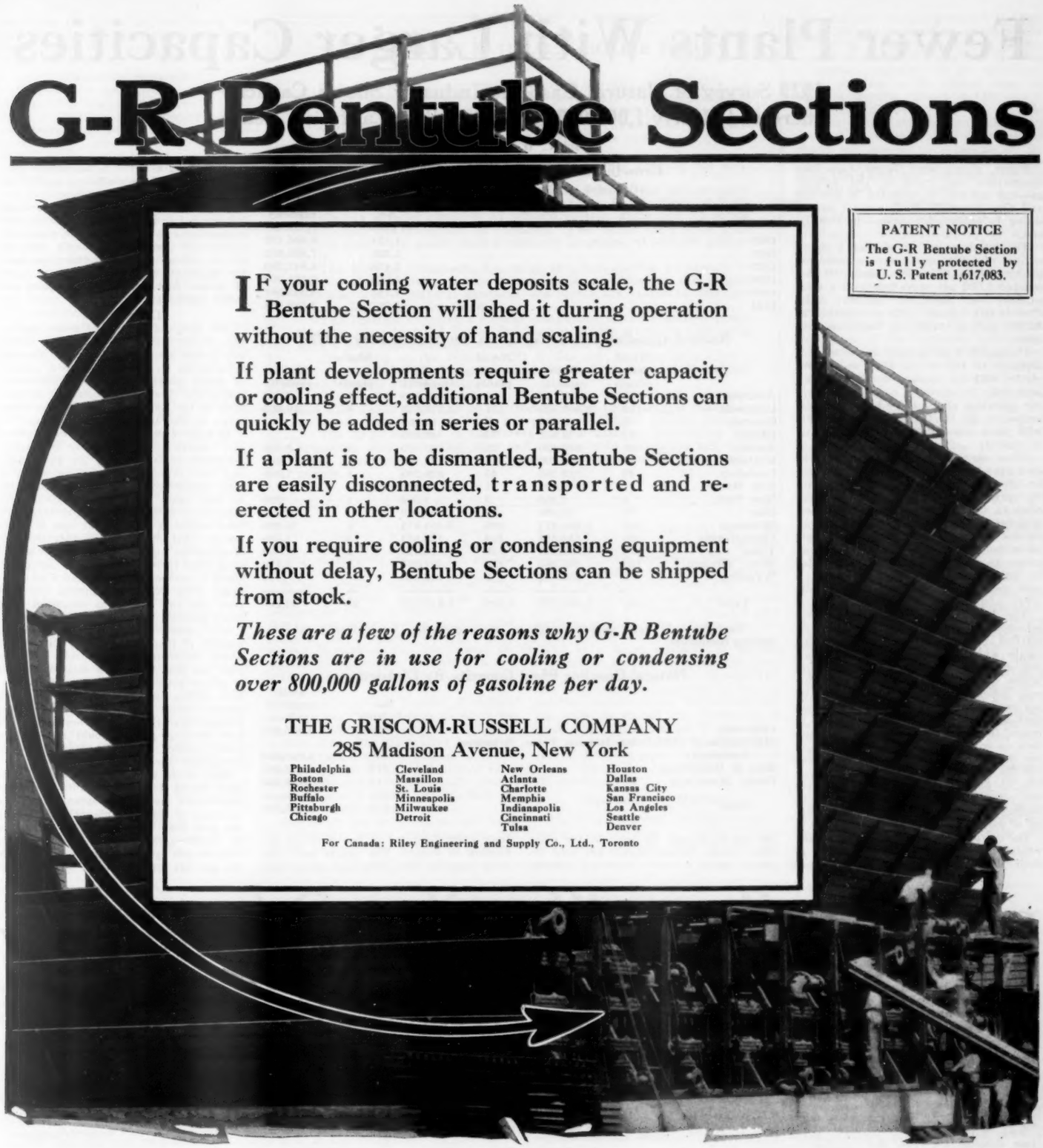
SAFETY DEMANDS CONSTANT TRAINING

Mr. Kaye in summarizing his discussion of fires in the natural gasoline industry says:

"Of one outstanding indication, I have become thoroughly impressed. No matter how well your plant has been designed, or no matter how full of hazard it may be, it is my conviction that the plant cannot be operated with any degree of safety unless the operators are not only trained, but continuously trained and instructed in the purpose and import of all of the equipment in the plant, and particularly the why and wherefore of every valve under their control. Intelligent operation to back up enlightened design is absolutely necessary if we are to continue or improve the favorable record our industry has made."

*Annual meeting, Natural Gasoline Association of America. Mr. Kaye is superintendent, gasoline department, the Skelly company.

G-R Bentube Sections



IF your cooling water deposits scale, the G-R Bentube Section will shed it during operation without the necessity of hand scaling.

If plant developments require greater capacity or cooling effect, additional Bentube Sections can quickly be added in series or parallel.

If a plant is to be dismantled, Bentube Sections are easily disconnected, transported and re-erected in other locations.

If you require cooling or condensing equipment without delay, Bentube Sections can be shipped from stock.

These are a few of the reasons why G-R Bentube Sections are in use for cooling or condensing over 800,000 gallons of gasoline per day.

PATENT NOTICE
The G-R Bentube Section is fully protected by U. S. Patent 1,617,083.

THE GRISCOM-RUSSELL COMPANY
285 Madison Avenue, New York

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Fewer Plants With Larger Capacities

1929 Survey of Natural Gasoline Industry Shows Capacity Increased Nearly 1,000,000 Gallons Daily. California Leads

By C. O. Willson

Fewer plants with larger capacities summarizes the trend in the natural gasoline industry as reflected in The Oil and Gas Journal's sixth annual survey which is published complete in this issue.

The latest survey as of May 1 shows a total of 1,124 plants with a rated capacity of 8,695,652 gallons daily. Of this number 1,099 are operating with a total capacity of 8,613,467 gallons daily. Twenty-five plants with a capacity of 82,260 gallons daily are listed as shut down.

Compared with a year ago this is a decrease of 105 in the total number of plants with an increase of 830,075 gallons daily in capacity. Considering only the operating plants there has been a decrease of 73 in the number of plants with an increase of 957,999 gallons daily in capacity.

These data reflect the fact that the past year has witnessed a steady growth in the natural gasoline industry with the certainty that this growth will continue in several of the areas over the remainder of the year. Bureau of Mines figures which are published complete elsewhere in this issue show that this increase in capacity is being accompanied by an increase in actual production a new peak being established practically every month.

The latest Bureau of Mines figures reported the production for March at 5,860,000 gallons daily. This production figure which does not include the output of some of the smaller companies whose capacities are given in this survey, indicate an operating status of 67 per cent capacity. The same explanation that has been given in previous years in regard to capacities applies to this year's data on capacities. In compiling the data for the survey the companies are asked for the capacities of their plants in gallons per day. However, in many instances the companies give their actual output stating that they have no accurate method of estimating capacity.

On the other hand, a number of companies give the potential capacities of their plants which often is several times the actual output. In some of the older fields where the gas supply has been depleted the owners have not reduced their plant facilities in line with the reduction in output. The plants have the same capacity that they had when they were first built but it is improbable that they will ever have sufficient gas to operate on that basis again.

This variation in reporting methods has applied in previous years so that the comparisons over the six-year period do reflect the steadily increasing capacity of the natural gasoline industry so readily apparent when any study is made of motor fuel markets throughout the entire industry.

Growth of Natural Gasoline Industry

(Compiled by The Oil and Gas Journal)

	No. of plants	Daily capacity (gallons)
1929	1,124	8,695,727
1928	1,229	7,865,652
1927	1,148	6,947,264
1926	1,063	5,121,000
1925	1,143	4,642,561
1924	1,012	3,396,961

Natural Gasoline Plant Capacities By States, May, 1929

	Total No. of plants	Daily capacity	No. of operating plants	Daily capacity	Shut-down plants*	Daily capacity
Arkansas	14	115,722	13	113,722	1	2,000
California	159	2,807,525	151	2,770,925	8	36,600
Colorado	2	11,000	2	11,000	..	.....
Illinois	74	49,837	74	49,837	..	.....
Kansas	27	189,150	25	181,100	2	8,050
Kentucky	12	40,100	11	39,100	1	1,000
Louisiana	46	333,785	45	326,785	1	7,000
New Mexico	1	9,000	1	9,000	..	.....
New York	4	2,250	3	1,550	1	700
Ohio	33	65,560	33	65,560	..	.....
Oklahoma	303	2,666,677	298	2,651,677	5	15,000
Pennsylvania	160	130,351	158	128,851	2	1,500
Texas	150	1,734,325	148	1,726,325	2	8,000
West Virginia	130	403,985	128	401,575	2	2,410
Wyoming	9	136,460	9	136,460	..	.....
Total	1,124	8,695,727	1,099	8,613,467	25	82,260

*Includes only those shut-down plants whose capacities were given by the reporting companies.

Natural Gasoline Plant Capacity By Divisions

	No. of plants	Daily capacity (gallons)
California	159	2,807,525
Mid-Continent (Oklahoma, Kansas, Texas, Arkansas, Louisiana)	540	5,039,659
East of Mississippi	413	692,083
Rocky Mountains	12	156,460
Total	1,124	8,695,727

Larger Units

The fact that this year fewer operating plants were reported than during any period since 1926 is due to two developments. In the first place a number of small plants have been shut down throughout the entire industry, particularly in the Eastern fields and the oldest areas in the Mid-Continent section.

In answering this year's questionnaires the owners of these plants in several instances explained that the gas supply had been reduced to the point where it was unprofitable to continue operation. In most cases the gas is turned over to companies with adjoining plants so the total output of a particular area is maintained. This situation obviously tends to decrease the number of plants and at the same time increase the output per plant. Quite a number of small plants in Oklahoma were shut down during the past year and the operations combined with other plants.

The second factor in the decreased number of plants is the fact that in the newer fields the trend during the past year has been to build a smaller number of plants with large capacity. This situation applies even in the Seminole development where in its early history it was thought that the combination of gas lift and gasoline plants would result in a large number of small plants scattered throughout the field.

Most of the manufacturers in that area have found the large plants the most economical method of operation and a majority of the new plants built during the past year have a capacity in excess of 20,000 gallons daily. In some cases considerable gasoline is obtained from the gas lift units installed on the leases

Personnel of Natural Gasoline Industry

Following is a list of companies operating one or more natural gasoline plants. The data include name of company, general office address, total number of plants, total capacity and personnel.

The list does not include a few companies which do not report their personnel.

Most of these companies are small manufacturers who do not maintain distinct organizations for the operation of their plants. The name of these companies and capacities of their plants will be found in that part of the survey which gives a list of plants by states.

COMPILED BY THE OIL AND GAS JOURNAL

Company and General Office Address—	No. plants	Daily cap'y. gallons	President	Vice President	Secretary	Treasurer	Sales Manager	Gen. Supt. of Plants	Purchasing Agent
A. C. F. Gasoline Co., 808 S. Cheyenne Ave., Tulsa	1	750	N. V. V. Franchot	J. J. Heberle	D. W. Franchot	D. W. Franchot	C. L. Tracy	J. E. Bumpus	
Adams Gasoline Co., Wright Bldg., Tulsa	2	15,000	H. G. Davis	J. H. O'Rear		G. C. Harned			H. A. Wilson
Akin Gasoline Co., The, Exchange Natl. Bank. Bldg., Tulsa	2	2,000	J. H. McCoy	J. D. Dinsmoor	L. E. Dinsmoor	H. R. Johnson	A. J. Pfister		W. S. Cox
Altitude Petroleum Corp., 814 Kennedy Bldg., Tulsa	1	4,000	I. Arthur Anson	M. L. Freese					
Amerada Petroleum Corp., Petroleum Bldg., Tulsa	9	111,000	A. Jacobsen	A. M. Blow	Robert Nock	H. J. Carr		M. E. Mockley	G. W. Edmunds
American Natural Gas Corp., 911 Chapman Bldg., Los Angeles, Calif.	3	22,500	E. E. Peacock	E. P. Warner	L. M. Harlow	L. M. Harlow		L. S. Campbell	
American Oil Development Co., 1414 Oliver Bldg., Pittsburgh, Pa.	8	3,025	Theodore A. Tack	Harry S. Tack	Willis H. Siegfried	Augustus V. Tack		John Hays	John Hays
Arab Gasoline Corp., Exchange Natl. Bank Bldg., Eastland, Tex.	1	25,000	Samuel Butler	P. T. Sharples	W. E. Cox	W. E. Cox	K. B. Tanner	Franklin Dwyer	K. B. Tanner
Arkansas Natural Gas Corp., Ardis Bldg., Shreveport, La.	6	45,000	Henry L. Doherty	D. W. Harris*	E. N. Watkins	E. H. Johnston	G. L. Gano	K. E. Jones	Paul F. McBride
Associated Producers Co., 11 Broadway, New York, N. Y.	2	1,425	M. P. Williams	Robert McKelvy	M. A. Taylor	F. A. Marsellus	W. S. Corwin	D. B. Tanner	C. H. Bickell
Atlas Oil Co., Main St., Clarion, Pa.	1	100	Not Incorporated						Abe Kaufman

(Continued on Page 102)

adjoining the wells. In these cases the practice is to pipe the gasoline to a large plant where it is stabilized and made ready to market.

California Situation

California is the outstanding example of the trend toward larger plants. That State in fact has had a greater growth in gasoline production than any other area and at this time it appears that it will be the center of new development over the remainder of the year. Outside of California there are no new fields being developed from which large gas supplies will be available. The greater Seminole development in Oklahoma is nearing the saturation point so far as natural gasoline plants are concerned and if it maintains its present production of approximately 1,100,000 gallons daily over the remainder of the year it will be doing better than a majority of the manufacturers expect.

Some progress has been made during the past year in extracting gasoline from the gas of high sulphur content in the West Texas area but it is certain this development will be slow so that the output of that area will not become a major factor this year. In the remaining areas the new pools are small.

A year ago California had 150 operating plants with a rated capacity of 2,109,000 gallons daily. This year 151 plants are listed as operating with a total capacity of 2,770,925 gallons daily. With practically the same number of operating plants the capacity has increased 661,925 gallons or 70 per cent of the total for the entire country.

The California growth is due to the bringing in of new producing sands in the Los Angeles Basin. The wells are not only large producers of crude oil but they also have had a large flow of gas with a higher gasoline content than the earlier California fields. Signal Hill and Santa Fe Springs Fields have been the scene of activity for the gasoline manufacturers during the past year. Several of the companies already had one or more plants operating in these areas with gas obtained from shallower sands. When the new supplies became available they simply added more units to their operating plants. In other cases the manufacturers found it necessary to practically rebuild their old plants and some of the plants placed in operation during the past six months are the last word in plant construction.

Three Large Plants

Three California plants listed in this year's survey have a capacity in excess of 100,000 gallons daily. The Signal Hill plant of the Shell Oil Co. is listed as having a capacity of 180,000 gallons daily.

It has actually produced almost 200,000 gallons, a daily figure which is approximately equal to the entire production in the United States in 1915. The plant is the oil absorption type. Many of the features of this plant were described in an article published in the May 2 issue of The Oil and Gas Journal, page 128.

The plant of the General Petroleum Corp. on the C.C.M.O. lease in Santa Fe Springs Field has a capacity of 150,000 gallons daily. The third plant is that of the Norwalk Co., also located in Santa Fe Springs which has a capacity of 125,000 gallons daily. Several plants have a capacity around 50,000 gallons daily in the Los Angeles area.

Due to the new development, California in February passed Oklahoma as the largest manufacturer of natural gasoline. According to those in touch with the California situation the end has not been reached in plant expansion although construction work is not now as active as it was the latter part of last year. There are still some deep sands to be developed in the Santa Fe Springs and the new Kettleman Hills area where the first plant recently started operating, potentially is a large producer of natural gasoline. In addition there is some scattered development such as Elwood Terrace which offers opportunities for the gasoline manufacturers. Efforts are being made to curtail the production of crude oil in California and if these measures are successful further expansion in natural gasoline plant facilities will be slower than it has been during the past 12 months.

Importance in Marketing

The large California production has resulted in a surplus in excess of California requirements. Some of this surplus has been brought around to the East Coast either as stabilized natural gasoline or as a blended motor fuel. It cannot be said that this gasoline has been a serious competitor for the Mid-Continent area up to the present time for natural gasoline prices on the whole have been favorable over the past 12 months. Should the California shipments increase, however, this competition no doubt will become more serious for the Mid-Continent area has depended on the East Coast and Gulf Coast to absorb the greater part of its output.

Oklahoma

Oklahoma with 298 operating plants still retains the leadership of the states in the number of plants, a position which apparently it will maintain for an indefinite period. The number of operating plants decreased from the 323 total last year. This decrease in the number of operating plants was in part due to changes in the method of listing the plants. Last year some of the companies listed their gas lift units. These units have now been tied in with their regular plant operation and only one plant is reported.

It is also true that a few small plants have been shut down. As previously explained these are mainly located in small scattered pools where a few wells were supplying gas for one plant. In explaining the shut-down status of two of their plants one manufacturer wrote that the equipment in their plants was worn out from several years' service and he did not believe with the gas supply constantly diminishing that he was justified in installing new equipment. Some of the larger manufacturers have found it expedient to centralize their operations by shutting down one or more units.

The Oklahoma City area offers the only opportunity for plant expansion on a large scale over the remainder of the year and at this time the outlook for that section is not considered favorable. One plant was built following the bringing in of the discovery well and it is now making around 5,000 gallons of gasoline daily. A number of wells are drilling to the deep sand and should they obtain crude oil production the wet gas supply will be augmented so that additional wells will be justified.

New plant construction during the past six months has taken care of the gas available in the St. Louis-Pearson, Maud and Mission Pools of the greater Seminole area. At this time it appears certain that plants already operating will

(Continued on Page 128)

HIGH POINTS IN NATURAL GASOLINE SURVEY

Capacity of plants increased almost 1,000,000 gallons daily, indicating $50,000,000 expansion during past year. Present investment in natural gasoline industry approximately $400,000,000.

California takes lead from Oklahoma in capacity of its plants with total of 2,807,525 gallons daily. The State had 70 per cent of the past year's expansion.

California, Oklahoma and Texas have 83 per cent of the total capacity in United States.

Shell Oil Co. of California has largest plant of the natural gasoline industry. Its Gosnell plant in the Long Beach Field of California has a rated capacity of 180,000 gallons daily and its actual production has exceeded its capacity. Two other California companies each have plants with a capacity in excess of 100,000 gallons daily.

The Phillips Petroleum Co., with 39 plants having a capacity of 899,000 gallons daily, easily maintains its position as the largest manufacturer of natural gasoline. Its plants are scattered throughout the Mid-Continent Field.

The Phillips company's closest competitor is the Standard Gasoline Co. (Standard Oil Co. of California) whose plants in California have a total approximate capacity of 550,000 gallons daily.

The plants of the Sinclair Oil & Gas Co. in Oklahoma have a capacity of 385,000 gallons daily and those of the General Petroleum Corp. 312,000 gallons daily.

Considered as one company, The Texas Company of Delaware and The Texas Company of California is the third largest manufacturer of natural gasoline with a capacity of 450,765 gallons daily.

The large increase in California natural gasoline production has created a surplus in that area and considerable quantities are now being marketed in the East in competition with the Mid-Continent output.

Natural Gasoline Plants By States

Abbreviations: Oil absorption, absp.; compression, comp.; oil absorption and compression, A-C. All capacities given in gallons per day. *Shut down.

COMPILED BY THE OIL AND GAS JOURNAL

ARKANSAS

Company and plant address—	Field location—	Type of plant	Daily cap'y gallons
Arkansas Natural Gas Corp., El Dorado	Armstrong Farms	A-C	10,000
Arkansas Natural Gas Corp., Louann	Louann	Absp.	10,000
Gillmore, Forrest E., Co., Norphlet	Norphlet	Absp.	*2,000
Gulf Refining Co. of Louisiana, El Dorado	Sec. 15-18-15, Union Co.	Absp.	4,500
Henderson Co., The, El Dorado	Sec. 20-18s-15, Union Co.	Absp.	13,760
Imperial Oil & Gas Products Co., El Dorado	El Dorado	A-C	450
Magnolia Petroleum Co., Union	Sec. 7-16s-15w	Comp.	7,600
Rainbow Gasoline Corp., El Dorado	Secs. 10 and 15-17s-15w, Union County	Absp.	8,912
Reserve Petroleum Co., Louann	NE Sec. 30-15s-16w, Ouachita County	Absp.	18,000
Simms Oil Co., Norphlet	Sec. 9-16s-15w, Union Co.	Char.	5,000
Simms Oil Co., Norphlet	Sec. 29-16s-15w, Ouachita County	Char.	5,000
Skelly Oil Co., Box 208, El Dorado	Sec. 9-17s-16w	Absp.	4,500
Standard Oil Co. of La., El Dorado	El Dorado Field	A-C	24,500
Standard Oil Co. of La., Smackover	Smackover Field	A-C	1,500

CALIFORNIA

Company and plant address—	Field location—	Type of plant	Daily cap'y gallons
American Natural Gas Corp. 911 Chapman Bldg., Los Angeles	Cat Canyon, Santa Barbara County	Absp.	*7,500
American Natural Gas Corp. 911 Chapman Bldg., Los Angeles	Domingues, Los Angeles County	Absp.	*7,500
American Natural Gas Corp. 911 Chapman Bldg., Los Angeles	Inglewood, Los Angeles County	Absp.	*7,500
Baiel Gasoline Co., Los Angeles	Midway	Absp.	4,000
Bankline Oil Co., 1018 Board of Trade Bldg., Los Angeles	Long Beach	Absp.	35,000
Belridge Oil Co., Santa Fe Springs	Elk Hills	Absp.	7,000
Belridge Oil Co., Santa Fe Springs	Lost Hills	Absp.	5,000
Brea Canyon Oil Co., Los Angeles	Fullerton	Comp.	700
Calestoco Gasoline Co., Los Angeles	Huntington Beach	Absp.	4,000
Chanslor-Canfield Midway Co.	Del Amo lease	Absp.	6,000
Calumet Oil Co., Fillmore	Sec. 3-3n-19w, Ventura Co.	Comp.	650
Clenage Corp.	Ventura	Absp.	25,000
Cowan Oil & Refining Co., 303 Merchants Natl. Bank Bldg., Los Angeles	Rosecrans	A-C	12,000
Export Refining Corp., 1001 Board of Trade Bldg., Los Angeles	Torrance-Lomita	Absp.	500
Field, O. C., Gasoline Corp., 609 Board of Trade Bldg., Los Angeles	Huntington Beach	Absp.	25,000
Field, O. C., Gasoline Corp., 609 Board of Trade Bldg., Los Angeles	Huntington Beach	Absp.	7,500
Field, O. C., Gasoline Corp., 609 Board of Trade Bldg., Los Angeles	Maricopa	Absp.	5,000
Fullerton Oil Co., Fullerton	Sec. 2-3-10w, Orange Co.	A-C	6,000
General Petroleum Corp. of Calif., Santa Fe Springs	C. C. M. O. lease	Absp.	150,000
General Petroleum Corp. of Calif., Ventura	Barnard lease	Absp.	60,000
General Petroleum Corp. of Calif., Alamitos Heights	Wasem lease	Absp.	30,000
General Petroleum Corp. of Calif., Signal Hill	Walnut and Hill Sts.	Absp.	12,000
General Petroleum Corp. of Calif., Athens	Athens	Comp.	40,000
General Petroleum Corp. of Calif., Brea	Tonner Canyon	Absp.	20,000
Getty, George F., Gasoline Co.	Seal Beach Field	Absp.	12,000
Gilmore Gasoline Corp., 2423 East 28th St., Los Angeles	Signal Hill Field, Los		

(Continued on Page 113)

Personnel of Natural Gasoline Industry

Company and General Office Address—	No. plants	Daily cap'y. gallons	President	Vice President	Secretary	Treasurer	Sales Manager	Gen. Supt. of Plants	Purchasing Agent
Atlantic Oil Producing Co., Magnolia Bldg., Dallas, Tex.	3	15,000						J. H. Stewart	Curt Oppel
Bankline Oil Co., 1018 Board of Trade Bldg., Los Angeles, Calif.	2	57,000	John Barneson	H. J. Barneson	W. E. Kropp			E. L. Tobias	H. M. Paulsen
Barco Gasoline Co., Alhambra Bldg., Tulsa	2	2,500	Thomas Chestnut	R. A. Koons	J. L. Goddard	M. F. Powers	R. A. Koons	J. H. Archer	R. A. Koons
Barnsdall Oil Co., Petroleum Bldg., Tulsa	9	51,400	E. B. Reeser	R. F. MacArthur		E. O. Bartlett	H. L. Hughes	A. J. Schlosser	C. E. Good
Bartoe, Harry T., Petrolia, Pa.	1	25	Harry T. Bartoe	Harry T. Bartoe	Harry T. Bartoe		Harry T. Bartoe		Harry T. Bartoe
Bell Oil & Gas Co., Kennedy Bldg., Tulsa	7	61,500	S. L. Lubell	Mark Finston*	Albert Finston	J. J. Lubell	Albert Finston		C. E. Cadieux
Berry, Pryor, Petrolia, Pa.	1	20							
Big Lake Oil Co., Benedum-Trees Bldg., Pittsburgh, Pa.	1	20,000	Levi Smith	J. G. Farquahar*	W. E. Huston	J. G. Farquahar	J. B. Huffmann	L. G. Thompson	
Bradford Gasoline Co., Auerheim Bldg., Bradford, Pa.	1	300	F. G. Bishoff	G. C. Watt	S. C. Dougherty	S. C. Dougherty	H. E. Double	F. G. Kleiderlein	
Breckenridge Gasoline Co., 2313 Madison Ave., Toledo, Ohio.	1	12,000	A. S. Close		A. S. Hickok	A. S. Hickok		R. L. Ponsler	
Brooks & Hanlon, Inc., Seventh and Cheyenne Sts, Tulsa	1	32,000	E. I. Hanlon	T. K. Smith	J. H. Boyle	D. E. Buchanan	A. F. Wood	G. E. Yonker	
Brundred Gasoline Co., Natl. Transit Co. Bldg., Oil City, Pa.	1	1,000	W. J. Brundred		H. D. Brown	Al W. Smith		G. E. Exley	
Bryan, Phelps & Ilseng, Shamrock, Tex.	1	8,000	Frank Phelps	Thomas Bryan		Thomas Bryan		Thomas Bryan	
Cabin Creek Gas Co., Quarrier and Dunbar Sts., Charleston, W. Va.	1	2,500	H. A. Wallace		E. Reynolds	E. Reynolds, Jr.		R. N. Parks	C. S. Duffield
California Co., The, 225 Bush St., San Francisco, Calif.	1	2,700	K. R. Kingsbury	H. M. Storey	J. H. Tuttle	R. C. Warner			
Calumet Oil Co., 517 I. W. Hellman Bldg., Los Angeles, Calif.	1	650	J. E. Wallis	Thomas H. Collins	W. F. Staunton	W. F. Staunton		J. C. Armstrong	
Cannon Gasoline Co., Amarillo, Tex.	1	6,000	J. J. Hastings	F. J. Storm	J. B. Dooley	F. J. Storm			
Canonsburg Iron & Steel Works, Canonsburg, Pa.	1	350	E. W. Edwards	D. M. Stembel	E. G. Haines	E. G. Haines	J. R. Leonard		J. R. Leonard
Carnegie Natural Gas Co., Frick Annex Bldg., Pittsburgh, Pa.	7	5,598	S. W. Meals		James J. Campbell	H. E. Jeffries		John Glass	
Carson Carbon Co., 432 New St., Cincinnati, Ohio	1	500	J. B. Hawkey	Bromwell Ault	Hubert A. Vance	Charles H. Ailis		C. V. Teegerstrom	
Carter Oil Co., Box 2045, Tulsa	7	228,000	R. M. Young	W. T. Funk	J. L. Cluley	J. L. Cluley	J. R. Freeman	George E. Edgett	B. Gooderham
Casto Oil Co., St. Marys, W. Va.	1	250	A partnership				Ira Williams	Ira Williams	Ira Williams
Chestnut & Smith Corp., Chestnut & Smith Bldg., Tulsa	6	120,500	T. K. Smith	E. I. Hanlon*	J. H. Boyle	C. P. Quinlan	A. F. Wood	F. G. Yonkers	
Clinger Oil & Gas Co., Tidewater, Pa.	2	1,000	Co-partnership					W. F. Clinger	
Cochran, John G., & Co., Sheffield, Pa.	1	700	John G. Cochran						
Cockrell-McIlroy Oil Co., Amarillo Bldg., Amarillo, Tex.	1	3,000	S. D. McIlroy	W. W. McIlroy	Geo. W. Pennington	Geo. W. Pennington		L. W. Cook	H. F. Allspaugh
Coltexo Corp., 45 East Forty-second St., New York, N. Y.	2	52,000	F. F. Curtze	Edwin Binney*	R. L. Carr	G. L. Bubb	W. H. Anders	W. E. Reardon	W. E. Reardon
Columbian Gasoline Corp., 45 East Forty-second St., New York, N. Y.	6	62,000	F. F. Curtze	Edwin Binney*	R. L. Carr	G. L. Bubb	W. H. Anders	W. E. Reardon	W. E. Reardon
Comar Gasoline Co., Shell Bldg., St. Louis, Mo.	3	33,000	T. F. Lydon	E. J. Nicklos	P. R. Chenoweth	P. R. Chenoweth	G. G. Woodruff	S. S. Smith	C. B. Singleton
Comar Oil Co., Shell Bldg., St. Louis, Mo.	2	16,000	U deB Daly	T. F. Lydon	P. R. Chenoweth	T. F. Lydon	G. G. Woodruff	S. S. Smith	C. B. Singleton
Consolidated Gasoline Co., 2313 Madison Ave., Toledo, Ohio.	1	15,000	Charles V. Eddy	A. S. Hickok	A. S. Close	A. S. Hickok		R. L. Ponsler	
Continental Oil Co., Continental Bldg., Denver, Colo.	2	11,000	S. H. Keoughan	W. H. Ferguson*	H. P. Ferree	G. F. Smith	L. R. Milne	Fred Willson	C. A. Prichard
Cook Oil Lease, Kelletville, Pa.	1	500	E. S. Collins, Owner						
Cowan Oil & Refining Co., 303 Merchants Natl. Bank Bldg., Los Angeles, Calif.	1	12,000	Fred P. Hughes	John A. Arnold	W. G. Howard				
Cumberland Gasoline Corp., 1524 Hanna Bldg., Cleveland, Ohio	1	4,500	M. A. Monaghan	M. H. Rourke	Carl J. Weideman	Carl J. Weideman	J. G. Swartz	J. G. Swartz	J. G. Swartz
Cushing Refining & Gasoline Co., Cushing, Okla.	4	77,000	E. C. Mullendore	E. J. Blank	Rex H. Winget	R. C. Jones	E. O. Derrick	E. C. Smith	E. C. Smith
Daugherty, C. R., & Co., Y.M.C.A. Bldg., Butler, Pa.	3	181	C. R. Daugherty and M. G. Daugerty, Owners						
Daugherty, C. E., & Co., Owensboro	1	150	A co-partnership						
Denver Producing & Refining Co., 503 Commerce Bldg., Okmulgee, Okla.	1	2,000	F. G. Shreves	W. R. Schellhammer	R. G. Rapp	A. L. Schellhammer		H. E. Rapp	H. E. Rapp
Desdemona Gasoline Co., 407 Capps Bldg., Fort Worth, Tex.	1	5,000	W. F. MacDermott		J. E. Anderson	W. F. MacDermitt		F. P. Carroll	J. E. Anderson
De Soto Gasoline Co., Box 1791, Houston, Tex.	2	1,050	H. C. Wiess	P. B. Flynn*	J. G. Whitehurst	J. G. Whitehurst	P. B. Flynn	P. B. Flynn	P. B. Flynn
Devonian Oil Co., 618 Exchange Bank Bldg., Tulsa	4	26,000	J. H. Evans	A. W. Leonard	George D. Foster	L. C. Pitts	E. S. Calvert	E. S. Calvert	H. R. Dean
Dewey Portland Cement Co., 301 Mutual Bldg., Kansas City, Mo.	1	1,500	F. E. Tyler	D. M. Tyler	R. W. Moore	W. E. Tyler	W. M. Shepard	D. M. Tyler	P. P. Chamberlain
Dinsmoor & Co., 702 Second St., St. Marys, W. Va.	1	750	J. D. Dinsmoor	L. E. Dinsmoor*	W. P. Kerwood, Jr.	W. P. Kerwood, Jr.		D. H. Israel	W. P. Kerwood, Jr.
Dinsmoor Oil Co., Second St., St. Marys, W. Va.	2	150	J. D. Dinsmoor	F. K. Sellers	L. E. Dinsmoor	L. E. Dinsmoor		Henry Lane	
Dixie Oil Co., Inc., Slattery Bldg., Shreveport, La.	1	10,000	A. W. Peake	A. M. McCorkle*	A. M. McCorkle	A. M. McCorkle	A. M. McCorkle	F. O. Prior	R. B. Rice
Dixon Creek Oil Co., Amarillo Bldg., Amarillo, Tex.	1	15,000	S. D. McIlroy	W. W. McIlroy	G. W. Pennington	W. W. McIlroy	H. Raburn		H. L. Allspaugh
Eagle-Picher Lead Co., 134 N. La Salle St., Chicago, Ill.	1	2,500	A. E. Bendelari	Frederick Hertenstein*	Joseph Hummel, Jr.	E. B. Overbeck	W. N. Corbet	W. N. Corbet	W. N. Corbet
East Ohio Gas Co., 1405 E. Sixth St., Cleveland, Ohio.	1	1,000	R. W. Gallagher	Christy Payne	R. W. Brink	R. W. Brink		Charles F. Turner	George H. Horsley
East Ohio Producing & Refining Co., 1405 E. Sixth St., Cleveland, Ohio	1	6,000	R. W. Gallagher	Christy Payne	R. W. Brink	R. W. Brink			George H. Horsley
Elm Oil Co., Chestnut & Smith Bldg., Tulsa, Okla.	1	300	C. P. Quinlan	A. D. Blackard	J. L. Goddard	J. L. Goddard			
Empire Gas & Fuel Co., Ltd., 80 N. Main St., Wellsville, N. Y.	1	450	Harry Bradley	George H. Bradley	Harry Bradley	George H. Bradley		E. C. Harder	
Empire Oil & Refining Co., Empire-Masonic Bldg., Bartlesville, Okla.	17	212,000	Henry L. Doherty	F. R. Coates*	C. E. Murray	R. L. Morton, Jr.	S. B. Crooks	G. M. Davidson†	G. A. Thompson
Enfisco Oil Corp., 214 Court Arcade Bldg., Tulsa	2	5,000	Edwin N. Fischer	Joseph F. Dittman*	M. Jerome Fischer	Larry J. Margulies	William H. Hiler	William H. Hiler	William H. Hiler
Equitable Gas Co., 435 Sixth Ave., Pittsburgh, Pa.	2	8,500	A. W. Robertson	R. J. Graf*	W. B. Carson	C. J. Braun, Jr.	F. F. Schauer	M. C. Schneider	C. W. Leeper

(Continued on Page 105)

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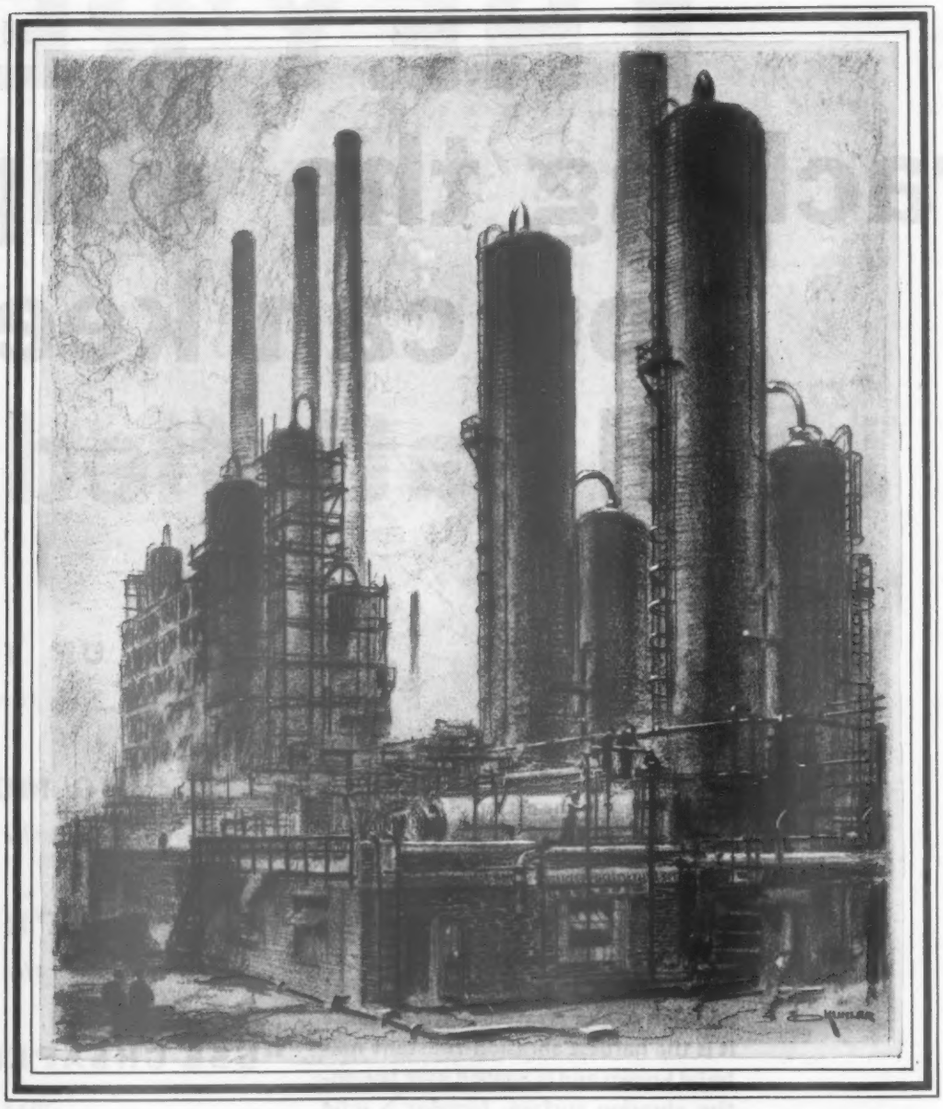

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Personnel of Natural Gasoline Industry

Company and General Office Address—	No. plants	Daily cap'y. gallons	President	Vice President	Secretary	Treasurer	Sales Manager	Gen. Supt. of Plants	Purchasing Agent
Export Refining Corp., 1001 Board of Trade Bldg., Los Angeles, Calif.	1	20,000	Carl J. von Bibra	William A. Kirk	Earle F. Demond	Earle F. Demond		William A. Kirk	F. S. Moon, Jr.
Faith Oil & Gas Co., Commercial Bank Bldg., Titusville, Pa.	1	500	J. E. Fleming	George F. Fleming	John J. Harvey	John J. Harvey		A. J. Phillips	
Federal Oil & Gas Co., 109 N. Union St., Akron, Ohio	3	500	Frank B. Many	L. M. Pettit*	C. F. Schnu	E. B. Gill	Charles W. Heasley	Charles W. Heasley	Charles W. Heasley
Field, O. C., Gasoline Corp., 609 Board of Trade Bldg., Los Angeles, Calif.	3	37,500	O. C. Field	W. G. Metson	N. J. Hale	R. B. Hale		J. C. Burks	
Fleming, J. E., Commercial Bank Bldg., Titusville, Pa.	1	400	J. E. Fleming, Owner					B. H. Crippen	
Foster Petroleum Corp., 315 Union Natl. Bank Bldg., Bartlesville, Okla.	3	15,000	H. V. Foster	Burdette Blue*	D. H. Bash	Paul F. Dahlgren	Paul F. Dahlgren	F. E. Turner	F. G. Donaldson
Fullerton Oil Co., R.F.D. 3, Box 72, Fullerton, Calif.	1		W. L. Valentine	W. F. Ball	H. F. Severns	W. L. Valentine			
Gates Oil Co., Ardmore, Okla.	1	2,500	John K. MacGowan	E. A. Brown	H. E. Danks	H. E. Danks			
General Petroleum Corp. of Calif., Higgins Bldg., Los Angeles, Calif.	6	312,000	Lionel T. Barneson	R. A. Sperry*	D. W. Woods	Leslie Barneson	E. R. Rich	George L. Ratcliffe	R. M. Ketchum
Gilmore Gasoline, Plant No. 1, 2423 E. Twenty-eighth St., Los Angeles, Calif.	1	30,000	E. B. Gilmore		C. S. Bessemyer	C. S. Bessemyer		H. L. Eggleston	C. P. Boone
Gilmore, Forrest E., Co., 1208 Public Service Bldg., Portland, Ore.	8	96,000	Chester A. Sheppard	E. L. Hall*	Seth L. Roberts	Seth L. Roberts		R. M. McCalley	R. M. McCalley
Gilmore - Dabney Gasoline Corp., Los Angeles, Calif.	2	60,000	E. B. Gilmore	Raymond T. Chandler*	C. S. Bessemyer	C. S. Bessemyer		H. L. Eggleston	
Glomar Gasoline Co., 520 Wright Bldg., Tulsa	4	13,500	Charles W. Grimes		Otha H. Grimes	Otha H. Grimes		J. D. McQuillan	
Grandin - Clinger - Bell & Jennings, Tidioute, Pa.	1	120	Small partnership						
Grimes Gasoline Co., 601 World Bldg., Tulsa	6	71,000	Charles W. Grimes	Philo W. Grimes	Otha H. Grimes	Otha H. Grimes	Otha H. Grimes	J. D. McQuillan	Otha H. Grimes
Grimes & Neal, Box 322, Tulsa, Okla.	1	2,400					Otha H. Grimes	E. E. Price	Roy O. Neal
Gulf Refining Co. of Louisiana, Ardis Bldg., Shreveport, La.	3	42,500		C. R. Minor				William H. Vaughan	P. P. Stagg
Gulf Production Co., Frick Annex Bldg., Pittsburgh, Pa.	7	16,600	G. S. Davidson	F. A. Leovy*	W. J. Guthrie	J. E. Nelson			
Gypsy Oil Co., First Natl. Bank Bldg., Tulsa, Okla.	10	142,135		Henry McGraw*	D. B. Catterlin	C. B. Clothier		H. R. Aureswald	V. C. Fuller
Hanlon Gasoline Co., Chestnut & Smith Bldg., Tulsa	2	35,000	E. I. Hanlon	T. K. Smith	J. H. Boyle	D. E. Buchanan	A. F. Wood	F. G. Yonker	
Hadden, J. B., Sheffield, Pa.	1	400	J. B. Hadden, Owner						
Hapgood, Roswell, T. Charleston, West Va.	1	3,500	Roswell T. Hapgood				Roswell T. Hapgood		Roswell T. Hapgood
Harland Oil Co., Box 57, Walco, Okla.	2	2,700	W. W. Vensel	T. S. Loffiands	H. W. Vensel	J. M. Loffiands	H. W. Vensel	H. W. Vensel	C. O. Duve
Haskell & Bayliss, Pleasantville, Pa.	1	100	Not incorporated	Not incorporated	Not incorporated	Not incorporated	William A. Haskell	William A. Haskell	William A. Haskell
Haskell & Dunham, Pleasantville, Pa.	1	100	Not incorporated	Not incorporated	Not incorporated	Not incorporated	William A. Haskell	William A. Haskell	William A. Haskell
Heck, W. B., & Co., Box 164, Owensboro, Ky.	1	150	Co-partnership	Co-partnership	Co-partnership	Co-partnership		C. E. Daugherty	
Henderson Co., The, 503 Bank of Commerce Bldg., Tulsa	2	23,760	Frank C. Henderson	J. Wood Glass	F. C. Hall	E. P. Henderson	F. C. Hall	J. O. Huffman	F. C. Hall
Hernigham & Hanlon, Sistersville, W. Va.	1	250	Ed Hanlon		G. D. May	G. D. May			
Herkness, J. Smylie, Bastrop, La.	1	1,000			Eugene K. Rieg	Eugene K. Rieg	John M. Hickey	John M. Hickey	John M. Hickey
Hickey & Rieg, Clarendon, Pa.	1	500					John M. Hickey	John M. Hickey	
Highway Oil Refining Corp., Lynch Bldg., Tulsa	2	1,000	F. I. Louis	F. A. Baker*	R. B. Pringle	C. B. Lynch	R. O. Wikoff	R. O. Wikoff	
Hirt-MacDermott & Co., 407 Capps Bldg., Fort Worth, Tex.	1	5,000	W. F. MacDermott	L. E. Hirt	J. E. Anderson	W. F. MacDermott		F. P. Carroll	J. E. Anderson
Hirt-MacDermott Gasoline Co., 407 Capps Bldg., Fort Worth, Tex.	1	5,000	W. F. MacDermott	L. E. Hirt	J. E. Anderson	W. F. MacDermott		F. P. Carroll	J. E. Anderson
Hope Construction & Refining Co., 545 William Penn Way, Pittsburgh, Pa.	22	142,400	Christy Payne	John B. Corrin*	S. E. W. Burnside	R. D. Beardsley		L. L. Tonkin	Frank O. LeRoy
Huber, J. M., of Louisiana, Inc., Swartz, La.	1	5,000	J. M. Huber	H. W. Huber	C. W. Easterling	Walter Huber	V. E. Morgan	R. D. Morgan	
Humble Oil & Refining Co., Humble Bldg., Houston, Tex.	13	50,700	W. S. Farish	R. L. Blaffer*	F. O. Freese	R. L. Blaffer	B. H. Brown	W. O. Stowell	J. M. Sitler
Hunter, Livingston L., Trust, Tidioute, Pa.	1	300	J. L. Hunter, trustee for Livingston L. Hunter Estate					George B. King	
Huntington Development & Gas Co., Quarrier and Dunbar Sts., Charleston, W. Va.	1	12,000	H. A. Wallace	F. W. Crawford*	E. Reynolds Jr.	E. Reynolds Jr.		R. N. Parks	C. S. Duffield
Independent Oil & Gas Co., Philtower Bldg., Tulsa	5	63,000	E. H. Moore	R. B. Pringle*	John E. Curran	R. M. Riggins	J. V. McCormick	R. R. Dean	M. L. Norris
Jefferson Gasoline Co., Bradford, Pa.	1	150	Lewis Emery and M. B. Cole, owners						
Johnson & Myers Bros., R.F.D. 3, Tidioute, Pa.	1	300	Ernest R. Johnson, manager						
Kansas Gasoline Co., 1504 Exchange Bank Bldg., Tulsa	1	5,000	J. A. Hull	Ralph C. Riley	O. J. McCann	P. F. Cole		J. L. Looney	P. F. Cole
Kentucky Pipe Line Co., Louisville, Ky.	1	.....	John J. O'Brien	T. B. Wilson*	J. J. McKenna	J. J. McKenna			
Kewanee Oil & Gas Co., 770 Bullitt Bldg., Philadelphia, Pa.	7	482	William M. Potts		R. B. Ashenfelter	R. B. Ashenfelter		F. B. Howland	
Liberty Oil & Gas Co., 343 Pennsylvania Ave. W., Warren, Pa.	1	83	J. O. Luman	C. J. Schiehuber*	Ed M. Schwing	C. J. Schiehuber		W. J. Wagner	
Lomita Gasoline Co., Spring St. and Orange Ave., Long Beach, Calif.	1	85,000	Ferdinand R. Bain	A. T. Jergins*	F. S. Wade	F. S. Wade	F. S. Wade	L. V. Cassaday	
Lone Star Gas Co., 1915 Wood St., Dallas, Tex.	8	94,000	L. B. Denning	R. A. Crawford*	D. L. Cobb	D. L. Cobb	F. L. Chase	J. R. Jarvis	B. R. Newbery
Louisiana Gas Products Corp., Fourth and Jefferson Sts., Monroe, La.	1	1,000	George G. Weeks	F. F. Millsaps	A. Haruff	A. Haruff			George G. Weeks
Louisiana Oil Refining Corp., Box 1113, Shreveport, La.	1	12,000	Richard B. Kahle	M. J. Grogan*	C. R. Harrison	T. H. Grobe	C. M. Lamason	R. B. Pierce	S. D. Jackson
McKelvy Oil & Gas Co., First Natl. Bank Bldg., Sistersville, W. Va.	1	50	E. A. Durham	Melvin C. Gass	E. Arthur Durham	J. B. Clark	P. L. Morris	A. E. Freeland	
McMan Oil & Gas Co., Drew Bldg., Tulsa	4	65,000	J. A. Chapman	R. M. McFarlin*	W. G. Guiss	H. G. Barnard	W. G. Guiss	G. S. Bays	M. R. Rushing
Magnolia Petroleum Co., Dallas, Tex.	31	107,520	E. R. Brown	B. H. Stephens*	Courtenay Marshall	W. C. Proctor	E. P. Angus	William Ray	E. R. Folmar
Mahutska Oil Co., New Jones Bldg., Robinson, Ill.	4	2,500	J. E. Hughes	Alex V. McCandless	John T. Smith	Alex V. McCandless	Alex V. McCandless	Alex V. McCandless	Alex V. McCandless
Manufacturers Light & Heat Co., 800 Union Trust Bldg., Pittsburgh, Pa.	7	25,730	Geo. W. Ratcliffe	L. A. Meyran*	H. E. Seibert	F. B. Fiahive		E. J. Egan	J. M. Simpson
Marland Production Co., Pon-									

(Continued on Page 108)

The Vogt Multitube

FOR HIGH PRESSURES

WROT STEEL BENDS AND FORGED STEEL FLANGES

Safe operation of heat exchangers at high pressures and temperatures is assured with the Vogt multitube type. Its construction can be applied to practically any operating pressure and temperature desired.

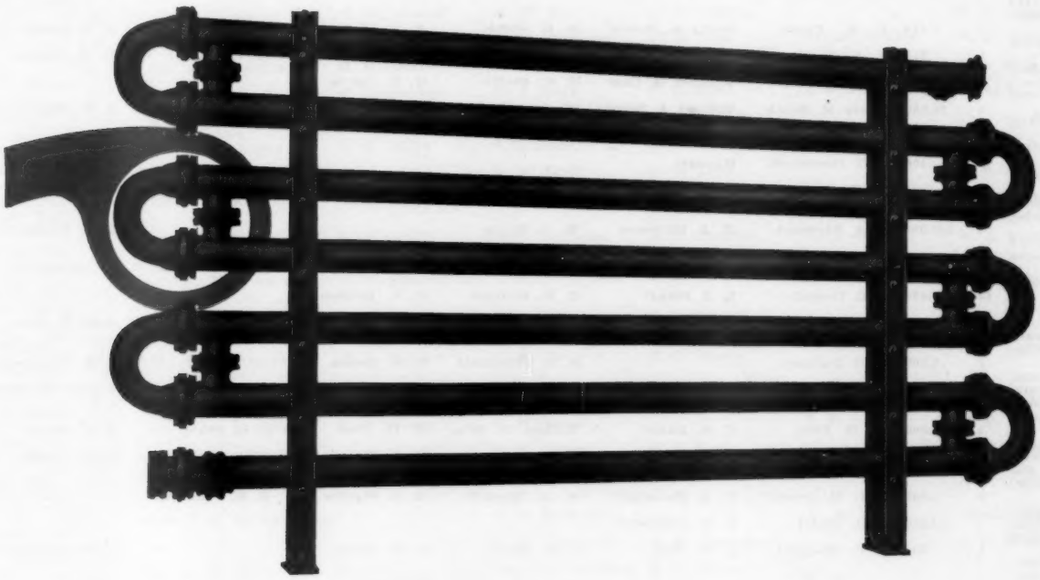
Forged steel flanges and tube sheets with wrot steel bends provide ample strength at points that are normally weak. For the outer shells and tube surfaces, special thicknesses of pipe or tubing are used as may be determined by the operating conditions.

Special consideration is given to the proper proportions of tube diameters to heat exchange without losing sight of the necessity for easy cleaning.

Manufacturers of: Drop Forged Steel Valves and Fittings, Oil Refinery Equipment, Water Tube and Horizontal Return Tubular Boilers, Ice and Refrigerating Machinery.

HEAT EXCHANGER

AND TEMPERATURES



Vogt Multitube Heat Exchangers are arranged in small diameter units, one above the other, in stands as high as required. The units are connected by means of heavy wrot steel return bends having extra thick walls. The stands can be arranged in a battery and connected by a common header. Great economies are being effected in numerous refineries where they are installed.

We will be glad to furnish detailed specifications and recommend the proper surface for any operating conditions given.

Vogt Multitube Heat Exchangers are also furnished for low pressure and temperature operation.

Bulletin HE-1 describes them in detail.

HENRY VOGT MACHINE CO.
INCORPORATED
LOUISVILLE, KY.

New York Chicago Philadelphia Cleveland Dallas

Personnel of Natural Gasoline Industry

Company and General Office Address—	No. plants	Daily cap'y. gallons	President	Vice President	Secretary	Treasurer	Sales Manager	Gen. Supt. of Plants	Purchasing Agent
ca City, Okla.	5	38,000	D. J. Moran	E. J. Nicklos	A. C. Frazier	B. H. Markham	W. Jervis	D. C. Williams	W. H. O'Connor
Masoneal Gasoline Co., Box 591, Tulsa	1	500	D. B. Mason	E. L. Thompson	J. E. Monroe	J. E. Monroe	J. E. Monroe	O. Reeves	
Midco Oil Corp., Midco Bldg., Tulsa	5	46,000	Henry T. Heald	T. J. Ellis	Burton French	Burton French	W. E. Lyons	H. W. Kelsey	N. H. Talbott
Mid-Continent Petroleum Corp., Cosden Bldg., Tulsa	10	48,300	Jacob France	J. C. Denton*		Charles Klein		F. E. Kearney	Gorge Pohler
Mid-Kansas Oil & Gas Co., Donell Bldg., Findlay, Ohio	4	42,000	R. J. Berry	W. W. Fleming*	E. B. Redpath	J. L. Cook		W. E. Smith	
Midwest Refining Co., Casper, Wyo.	1	80,000	T. A. Dines	R. S. Ellison*	L. G. Truby	T. A. Pedley		P. G. Weidner	A. G. Fidel
Monroe-Louisiana Carbon Co., 45 East Forty-Second St., New York, N. Y.	1	2,000	F. F. Curtze	Edwin Binney*	R. L. Carr	G. L. Bubb	W. H. Anders	W. E. Reardon	W. E. Reardon
Moon Gasoline Co., Chestnut & Smith Bldg., Tulsa	2	1,500	M. F. Powers	C. P. Quinlan	A. D. Blackard	Felix Quinlan		F. N. Rutherford	H. A. Keefe
M. T. C. Oil & Gas Co., 816 McBirney Bldg., Tulsa	1	4,500	William Seyler	Harry J. Wolf	C. F. Jacobson	C. F. Jacobson		W. D. Jefferies	Edwin S. Vincil
Myers & Hays, Chicora, Pa.	1	55							
National Oil & Development Co., 604 Atlas Life Bldg., Tulsa	1	3,000	A. B. Butler	S. G. Garrett*	E. Stephens	A. B. Butler Jr.	A. B. Butler, Jr.	J. W. Baldwin	A. B. Butler, Jr.
Natural Gas & Fuel Corp., El Dorado, Ark.	4	26,500	T. H. Barton	H. F. Nash	J. Zeppa	J. Zeppa	G. L. Gano	G. T. Koch	
Natural Gas Products Co., Los Angeles, Calif.	1	3,500	Shane Morgan	James E. Kelby	James E. Kelby	James E. Kelby		R. L. James	
National Products Co., 1510 Commonwealth Bldg., Pittsburgh, Pa.	6	9,450	F. W. Finley	Harry M. Brown	M. E. Eberle	M. E. Eberle		H. A. Frame	
Neal, H. B. & Son, Box 1871, Tulsa	1	750	H. B. Neal				R. V. Neal	H. B. Neal	R. V. Neal
New York Oil Co., 107 South Wolcott St., Casper, Wyo.	2	2,700	Emil H. Steiger	Whitney G. Case	H. C. Curtis	H. C. Curtis			
Noble Oil & Gas Co., 608 Wright Bldg., Tulsa	2	25,000	Edwin M. Smith	William J. Schnur	W. J. Coppinger	W. J. Schnur	S. C. Cameron	J. B. Boyce	R. M. Martin
Nolan & Lamberton, Box 1328, Tulsa	1	35	Partnership	Partnership					
North Penn Gas Co., Mill St., Port Allegany, Pa.	1	400	J. H. Isherwood,	Manager				L. F. Schlosser	
Norton & Jackson, Tidioute, Pa.	1	100	E. E. Norton	M. E. Jackson	E. E. Norton	E. E. Norton	E. E. Norton	Harry Head	
Norwalk Co., The, 1018 Board of Trade Bldg., Los Angeles, Calif.	1	125,000	John Barneson	H. J. Barneson	W. E. Kropp			E. L. Tobias	H. M. Paulsen
Ockland Gasoline Production Co., Bank of Commerce Bldg., Tulsa	2	7,000	A. C. H. Snyder	F. L. Townsley	M. A. Bigelow	M. A. Bigelow	E. M. Wildman	C. Cutting	M. A. Bigelow
Ohio Oil Co., Donnell Bldg., Findlay, Ohio	43	75,439	O. D. Donnell	R. J. Berry*	E. B. Redpath	F. A. Billstone			
Oil State Gasoline Co., 424 South Cheyenne, Tulsa	3	8,000	Oscar R. Howard	E. A. Ross	Dalton Lain	C. E. Duffield	John M. Hall	John M. Hall	Walter G.Kirschke
Oklahoma Gasoline Plants, Inc., 512 Berryhill Bldg., Sapulpa, Okla.	1	5,500	L. B. Jackson		M. D. Fitzgerald	R. J. Ranck		E. E. Thompson	
Oklahoma Natural Gas Corp., Okla. Nat. Gas Bldg., Tulsa	1	5,000	T. R. Weymouth	F. B. Long*	C. A. Donovan	W. K. Cottrell		Robert W. Hendee	Lee Morris
Okmulgee Producers & Manufacturers Gas Co., McCulloch Bldg., Okmulgee, Okla.	1	2,000	W. B. Price	C. H. Baker	William A. Hiatt	R. D. Pine	J. R. Schoy	J. R. Schoy	R. D. Pine
Omar Gasoline Co., Brown Bldg., Wichita Falls, Texas	1	11,500	E. A. Watts	P. L. Dunn	G. A. Ritnour	E. A. Watts	G. A. Ritnour	R. C. Crump	G. A. Ritnour
Orfic Gasoline Production Co., Bank of Commerce Bldg., Tulsa	2	4,000	A. C. H. Snyder	C. A. Downing*	M. A. Bigelow	M. A. Bigelow	E. M. Wildman		M. A. Bigelow
Owen, Libby-Owen, gas Dept., Nicholas Bldg., Toledo, Ohio	1	10,000	J. C. Blair‡	S. S. Cochrane‡					
Pala Oil Co., Inc., 908 McNeil St., Shreveport, La.	1	300	F. L. Wiegand	J. M. Post	T. M. Hope	T. M. Hope		C. P. Hanlen	C. P. Hanlen
Palmer Corp. of Louisiana, 1100 City Bank Bldg., Shreveport, La.	2	50,000	H. L. Hollis	N. C. McGowen	E. J. McGowen Jr.	E. J. McGowen Jr.	N. C. McGowen	B. M. Nowery	D. R. McWilliams
Parker, H. R., Chicora, Pa.	2	150	H. R. Parker, owner						
Pep Gasoline Co., Box 208, Sedan, Kans.	1	1,600	Jas. O'Neill Bruen	Clyde J. Bohner	E. W. Bruen	Jas. O'Neill Bruen	William Harman	William Harman	William Harman
Peppers Gasoline Co., Champlin Bldg., Enid, Okla.	1	3,000	Charles C. Peppers		H. H. Champlin			O. C. Sullivan	
Pequignot, E. O., Tidioute, Pa.	3	400	E. O. Pequignot	(Individually opd.)			E. O. Pequignot		E. O. Pequignot
Petroleum Exploration, Trico Bldg., Sistersville, W. Va.	1	400	E. A. Durham	W. H. Fitzgerald*	L. E. Gregg	P.W.Neuenschw'd'r		A. H. Wagner	George S.Bradfield
Phelps Gasoline Co., Shamrock, Texas	1	12,000	Thomas Bryan	Ione Bryan	Ione Bryan	Frank Phelps		Thomas Bryan	
Phillips Petroleum Co., Phillips Petroleum Bldg., Bartlesville, Okla.	39	899,000	Frank Phillips	L. E. Phillips*	O. K. Wing	O. K. Wing	H. A. Trower	F. E. Rice	H. E. Koopman
Pittsburgh & West Virginia Gas Co., 435 Sixth Ave., Pittsburgh, Pa.	1	6,000	A. W. Robertson	F. R. Phillips	U. B. Carson	C. J. Braun Jr.	M. C. Schneider§	F. F. Schauer§	C. W. Leeper
Powers, M. F., Chestnut & Smith Bldg., Tulsa	2	23,500	M. F. Powers	C. P. Quinlan	A. D. Blackard	Felix Quinlan		F. N. Rutherford	
Powers & Quinlan, Chestnut & Smith Bldg., Tulsa	2	2,000	M. F. Powers	C. P. Quinlan	A. D. Blackard	Felix Quinlan		F. N. Rutherford	
President Oil Co., The, Emienton Pa.	3	650	H. J. Crawford	T. B. Gregory	J. E. Taylor	J. E. Taylor			J. M. Simpson
Preston Oil Co., 99 North Front St., Columbus, Ohio.	9	52,500	Raymond Cross	F. H. Crawford*	P. A. Alberty	L. A. Seyffert	G. E. Howard	G. T. Koch	G. E. Howard
Price, Harry D., Renfrew, Pa.	1	100	Harry D. Price,	Sole owner					
Producers Oil Corp., 301 First Natl. Bank Bldg., Olean, N. Y.	1	700	W. A. Dusenbury	Harry Bradley*	M. A. Newman	M. A. Newman		H. J. Jacoby	
Producers & Refiners Corp., Box 449, Independence, Kans.	1	3,500	L. R. Crawford	John Fertig*	A. W. Heinemann	O. O. Holmgren	H. E. Johnston	R. E. Wertz	R. D. Wells
Pure Oil Co., The, 35 East Wacker Drive, Chicago, Ill.	8	66,500	H. M. Dawes	W. E. Hutton	F. S. Heath	Rawleigh Warner			G. L. Parsons
Rainbow Gasoline Corp., 503 Bank of Commerce Bldg., Tulsa	1	8,912	D. S. Brooks	D. P. Hamilton	F. C. Hall	F. C. Henderson			
Rancho La Brea Oil Co., 1105 California Bank Bldg., Los Angeles, Calif.	1	5,000	Not Incorporated	Not Incorporated				J. H. Chapman	J. B. Munro
Red River Oil Co., Drew Bldg., Tulsa	1	2,000	R. M. McFarlin	O. H. Chapman	H. G. Barnard	J. A. Chapman	W. G. Guiss	G. S. Bays	M. R. Rushing
Reitz, M. W., Conoquenessing, Pa.	1	20	W. M. Reitz						
Reno Oil Co., Wells St., Sistersville, W. Va.	4	972	J. P. Flynn	T. B. Gregory	W. R. Reitz	W. R. Reitz			
Reserve Gas Co., 545 William Penn Way, Pittsburgh, Pa.	1	20,000	J. B. Tonkin	T. B. Gregory	S. E. W. Burnside	R. D. Beardsley		L. L. Tonkin	F. O. LeRoy
Reserve Petroleum Co., Tuloma Bldg., Tulsa	5	46,000	Fred Phillips	D. W. Johnson*	Hunter L. Johnson	D. W. Johnson	L. R. Brammer	C. W. Warwick	J. E. Hampton
Reservoir Hill Gasoline Co., 417 South Hill St., Los Angeles, Calif.	1	18,000	L. E. Lockhart	L. W. Lockhart*	L. W. Lockhart	Charles S. Jones	W. T. Wells	J. J. Downey	W. H. Kelly
Rice Ranch Oil Co., 548 South Spring St., Los Angeles, Calif	2	8,500	Alfred C. Webster	G.W.Lichtenberger*	A. J. Bayer	H. G. Phillips			Edgar Craig

(Continued on Page 109)

Personnel of Natural Gasoline Industry

Company and General Office Address—	No. plants	Daily cap'y. gallons	President	Vice President	Secretary	Treasurer	Sales Manager	Gen. Supt. of Plants	Purchasing Agent
Rio Grande Oil Co. 417 South Hill St., Los Angeles, Calif.	1	28,000	L. E. Lockhart	L. W. Lockhart*	L. W. Lockhart	Charles S. Jones	A. M. Lockhart		W. H. Kelly
Romarti Gasoline Co., Shell Bldg., St. Louis, Mo.	1	10,000	T. F. Lydon	A. F. Garrett	P. R. Chenoweth	P. R. Chenoweth	G. G. Woodruff	S. S. Smith	C. B. Singleton
Rotary Gasoline Co., 209 Lynch Bldg., Tulsa	1	1,000	John M. Hall	T. J. Hartman	W. C. Elliott	W. C. Elliott	R. O. Wickoff	R. O. Wickoff	R. O. Wickoff
Ryan & Hackett Co., Inc., 511 Associated Realty Bldg., Los Angeles, Calif.	1	3,000	G. P. Ryan	H. A. Hackett	Joseph H. Haring	Joseph H. Haring			
Salem Gasoline Co., 940 Old South Bldg., Boston, Mass.	1	2,000	Godfrey L. Cabot	Fred Diddle		Thomas D. Cabot		Flava Pratt	Flava Pratt
Sand Springs Home (Gasoline Dept.), Railway Bldg., Sand Springs, Okla.	1	3,000	E. M. Monsell	Ed A. Page*	C. F. Tingley	E. M. Monsell	C. N. Stinnett	Homer Crooks	P. A. Smith
Sandy Oil & Gas Co., Shippenville, Pa.	3	.....	A. B. Collner		J. M. McLaughlin	J. M. McLaughlin			
Shaffer Oil & Refining Co., 424 South Cheyenne, Tulsa.	4	21,000	John J. O'Brien	John L. Gray*	W. R. Francisco	W. R. Francisco	B. L. Majewski	W. A. Melton	R. G. Martin
Sharpe Rowe & von Tacky Bros., Titusville, Pa.	1	80							
Shell Petroleum Corp., Shell Bldg., St. Louis, Mo.	5	228,000	U. deB. Daly	T. F. Lydon	P. R. Chenoweth	T. F. Lydon			
Signal Hill Gasoline Co., A. B. Bartlett Bldg., Los Angeles, Calif.	7	116,000	C. M. Fuller‖	J. S. Wallace*		W. E. Hart	C. B. Garretson	H. R. Linhoff	A. W. Buchanan
Signal Oil & Gas Co., 505 Roosevelt Bldg., Los Angeles, Calif.	5	110,000	S. B. Mosher	H. M. Mosher	O. W. March	O. W. March		R. H. Green	
Simms Oil Co., Magnolia Bldg., Dallas, Tex.	2	10,000	Edward T. Moore	W. L. Todd*	L. W. Richards	D. H. Voss	George Bowers	W. L. Todd	W. J. Morrison
Sinclair Oil & Gas Co., Sinclair Bldg., Tulsa	14	385,000	R. A. Griffith	H. B. Bernard*	A. L. Barrus	A. L. Barrus	A. T. Scherer	C. L. Brown	C. A. McNamara
Skelly Oil Co., Skelly Bldg., Tulsa	12	162,500	W. G. Skelly	C. C. Herndon*	F. T. Hopp	F. T. Hopp	J. F. Nagle	Emby Kaye	Fred W. Robertson
Sloan & Zook Co., 101 Main St., Bradford, Pa.	1	1,200	R. T. Zook	William J. Sloan	C. T. Rickerson	William J. Sloan		Paul H. Zook	
Smith-Hanlon, Inc., Chestnut & Smith Bldg., Tulsa	1	10,000	E. I. Hanlon	T. K. Smith	J. H. Boyle	D. E. Buchanan	A. F. Wood	F. G. Yonker	
Southern Gasoline Co., Ranger, Tex.	1	2,500	Fred C. Lewis		D. M. Trott	D. M. Trott		H. R. Hinman	
Southern Oil Co., 1005 Farmers Bank Bldg., Pittsburgh, Pa.	12	2,750	E. B. Reeser	E. O. Bartlett*	James A. Dunn	E. O. Bartlett		F. H. McQuiston	F. H. McQuiston
South Penn Oil Co., 545 William Penn Way, Pittsburgh Pa.	52	40,000	L. W. Young, Jr.	P. H. Curry*	John L. Hayes	S. G. Hartman	W. A. Jackley	W. K. McCray	E. W. Kartlink
Southwest Production Co., 123 West Seventh St., Bristow, Okla.	1	.....	F. W. Woodcock	E. A. Fieldtkeller		C. D. Perry		R. E. Bond	R. L. Patten
Standard Engineering Co., 833 Roosevelt Bldg., Los Angeles, Calif.	2	.....	P. N. Warner	Boyd Hammond	J. C. Merritt	J. C. Merritt			
Standard Gasoline Co., 225 Bush St., San Francisco, Calif.	44	550,000	K. R. Kingsbury	R. J. Hanna*	J. H. Tuttle	R. C. Warner			
Standard Oil Co. (Indiana) 910 South Michigan Ave., Chicago, Ill.	6	50,491	E. G. Seubert	Allan Jackson*	F. T. Graham	C. J. Barkdull		E. J. Goldman	E. J. Bullock
Star Gasoline Co., Sapulpa, Okla.	1	800	D. A. McDougal	J. E. Fought	T. H. Stuart		T. H. Stuart	M. F. Phillips	G. H. Stuart
Stebbins Oil & Gasoline Co., 946 Kennedy Bldg., Tulsa	2	7,500	J. Ray Stebbins	C. A. Steere	C. E. Nelson	C. E. Nelson		A. H. Brewer	
Sterling Oil & Gas Co. 723 Mims Bldg., Abilene, Tex.	1	700	C. H. Petry	W. S. Duty	J. G. Pettus	J. G. Pettus	T. T. Curtis	T. T. Curtis	T. T. Curtis
St. Helenes Petroleum Co., Ltd., 1031 S. Broadway, Los Angeles, Calif.	4	3,850	N. N. Haldin**		A. P. McEachern		W. H. Cowie	Charles Drader	Charles Drader
Stranahan & Cheuvront, 307 West Main St., Oblong, Ill.	3	180			A. B. Cheuvront	A. B. Cheuvront		J. F. Brown	
Superior Oil Corp., Wright Bldg., Tulsa	1	5,000	H. G. Davies	Maxwell Stevenson*	Maxwell Stevenson	G. C. Harnel			H. A. Wilson
Swiss Oil Corp., 402 Wolf-Wile Bldg., Lexington, Ky.	1	1,500	Thomas A. Combs	E. L. McDonald	James H. Combs	James H. Combs		G. M. Campbell	C. D. Yocum
Test Oil Co., 43 Main St., Bradford, Pa.	1	400	Lewis Emery	E. C. Emery	C. H. Olmsted	Lewis Emery	J. L. Moran	J. L. Moran	J. L. Moran
The Texas Co. of Delaware, 17 Battery Place, New York	19	174,740	R. C. Holmes	C. B. Ames*	E. M. Crone	C. E. Woodbridge	H. W. Dodge		A. F. Colling
Texas Co., The, of California, Los Angeles, Calif.	13	276,025	R. C. Holmes	C. E. Olmsted	E. M. Crone	C. E. Woodbridge			A. F. Colling
Texas-Louisiana Producing & Carbon Co., Inc., 811-812 Ouachita Bank Bldg., Monroe, La.	1	7,000	R. R. Beaman	Travis Oliver	C. H. Reid	C. H. Reid			
Texas Pacific Coal & Oil Co., F. & M. Bank Bldg., Fort Worth, Tex.	4	34,000	Edgar J. Marston	O. E. Mitchell*					
Thomas, R. L., 290 Main St., Tidioute, Pa.	1	180	R. L. Thomas						
Tidal Refining Co., Tidal Bldg., Tulsa	4	43,000	J. N. Robinson	A. F. Garrett*	D. W. Bell	D. W. Bell		C. R. Barton	J. B. Johnston
Tidal-Western Oil Corp., Tidal Bldg., Tulsa	1	10,000	J. N. Robinson	W. C. Franklin*	D. W. Bell	D. W. Bell		C. R. Barton	J. B. Johnston
Tiger Mountain Oil Co., 802 Mid-Continent Bldg., Tulsa	1	4,000	G. C. Arnold	C. H. Jenkins*	Willa Ora Bowers	Willa Ora Bowers		La Van Warren	
Tionesta Gas Co., Oil City, Pa.	1	100	J. B. Parker		E. W. Evans	H. H. Jones			
Tompsett Brothers, 15 Main St., Tidioute, Pa.	1	275	W. C. Tompsett				W. C. Tompsett	W. C. Tompsett	W. C. Tompsett
Transcontinental Oil Co., 705 Ritz Bldg., Tulsa	12	25,850	F. B. Parriott	L. B. McCammon*	E. D. Robinson	E. D. Robinson	H. J. Scott	R. T. Hapgood	W. R. Brown
Tyler Oil Co., Wells St., Sistersville, W. Va.	2	191	H. J. Crawford	S. Messer	Belle B. McCoy	T. B. Gregory		J. P. Flynn	
U. S. Carbon Co., 123 East Pine St., Bastrop, La.	1	2,000		W. J. Parkes	L. W. Burrow	R. B. Todd		Ed Parkes	R. F. McBride
United Carbon Co., Union Trust Bldg., Charleston, W. Va.	5	26,000	Oscar Nelson	T. S. Reed Jr.*	G. A. Williams	T. A. Whelan	A. G. Treadgold	H. E. Norrick	C. A. Urban
United States Refining Co., 1001 Board of Trade Bldg., Los Angeles, Calif.	1	25,000	C. J. von Bibra	Walter R. Cowan*	Earle F. Demond	Earle F. Demond	Marshall R. Simon	William A. Kirk	F. S. Moon Jr.
Union Gasoline Co., Commercial Natl. Bank Bldg., Independence, Kans.	2	4,000	Paul R. Johnson	Donald W. Stewart	Donald W. Stewart	H. F. Mitchell		L. G. Parsons	W. L. Orr
Union Oil Co. of California, Seventh and Hope Sts., Los Angeles, Calif.	9	261,000	W. L. Stewart	E. M. Clark*	John McPeak	R. J. McKeown	V. H. Kelly	R. W. Garman	H. C. Farquhar
Valley Osage Oil Co., 623 Mayo Bldg., Tulsa	2	2,500	W. A. Goforth	N. T. Gilbert	C. A. Solt	C. A. Solt			
Veach Oil Co., Veach Bldg., Oil City, Pa.	1	50	George J. Veach		John B. Veach	John B. Veach		C. O. Mitchell	
Victor Gasoline Co., Box 1733, Tulsa	9	53,000	M. F. Powers	C. P. Quinlan	A. D. Blackard	Felix Quinlan		F. N. Rutherford	
Viking Gasoline Corp., 814 Peoples Bank Bldg., Charleston, W. Va.	4	4,500	E. M. Burdette	C. L. Voress*	R. W. Skoog	C. K. Gilchrist			
Vincennes Oil & Gas Co., Vincennes, Ind.	1	5,000	E. M. Kerlin	C. E. Kerlin	D. G. Green	D. G. Green		E. M. Kerlin	R. D. Green

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HANDLES THE LONGEST STRINGS OF PIPE & CASING

945-D

OIL WELL S

WORLD'S OLDEST AND LARGEST
MANUFACTURERS OF OIL FIELD EQUIPMENT

PITTS

WITH EASE

AN all steel rotary, strong, safe, reliable, and built so it will easily handle any size drill pipe in the deepest wells.

The ease of operation, together with its long wearing qualities, make the "Oilwell" 27-inch the outstanding rotary of its type in the field.

"Oilwell" non-make-and-break rotaries are also made in 20" and 16" sizes. Make-and-break rotaries made in 26", 20" and 17" sizes.

"OILWELL" 27" NON MAKE AND BREAK ROTARY

UPPLY CO.

BURGH, U.S.A.

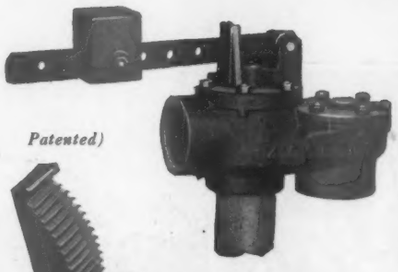
BRANCH STORES IN ALL OIL FIELDS

Save Money on
Pressure Storage

With

Oceco High Pressure Relief Valve
(Patented)

This valve may be set for relief at pressures up to 30 pounds and any vacuum desired. No springs or dashpots. Vapors may be piped away.



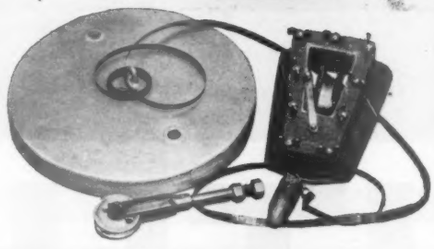
Oceco Pressure Type Gauge and Thief Hatch

Patented)

A convenient, gas-tight, non-sparking hatch. No liquid seals or gaskets — nothing to get out of order. A money-saver.

Oceco No. 8 Tank Gauge

A simple, accurate and gas-tight device for gauging tanks without opening them. Saves men and gasoline.

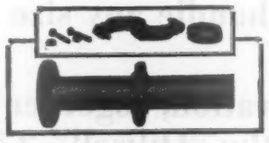


Oceco Fire Extinguisher
(Both portable and automatic installations)

An extinguisher of sufficient capacity to insure adequate protection. Operates under 100 pounds pressure, throwing a steady, forceful stream. Non-freezing. Safe on electrical equipment.

Oceco 2-Bolt Pipe Coupling

A lower cost per mile pipe coupling for oil, gas or acid.



Write for latest quotations.

THE OIL CONSERVATION ENGINEERING COMPANY

877 ADDISON ROAD CLEVELAND, OHIO

Engineering and Sales Service:

25 Broadway, New York
Box 552, Beaumont, Tex.
Tulsa Trust Bldg., Tulsa, Okla.
Neilan, Schumacher & Co., Los Angeles, Cal.

Personnel of Natural Gasoline Industry

Company and General Office Address—	No. plants	Daily cap'y. gallons	President	Vice President	Secretary	Treasurer	Sales Manager	Gen. Supt. of Plants	Purchasing Agent
Virginian Gasoline & Oil Co., Quarrier and Dunbar Sts., Charleston, W. Va.	18	187,700	H. A. Wallace	P. G. Gossler*	E. Reynolds Jr.	E. Reynolds Jr.		R. N. Parks	C. S. Duffield
Waggoner Refining Co., Inc., Breckenridge, Texas	1	10,000	W. T. Waggoner		R. L. Moore	R. L. Moore	C. F. Kolp	C. F. Kolp	
Ward Gasoline Co., Box 108, Breckenridge, Texas	1	5,000	John C. Ward	W. F. Seeger	Ewell Nalle	Ewell Nalle	W. F. Seeger	W. F. Seeger	W. F. Seeger
Wahl, A. R., Evans City, Pa.	1	250	A. R. Wahl				A. R. Wahl		
Warner-Caldwell Oil Co., Inc., Second Natl. Bank Bldg., Titusville, Pa.	6	3,500	Alex N. Warner	J. H. Caldwell Jr.	F. B. August	F. B. August	P. C. Hatfield	P. C. Hatfield	A. N. Warner
Washington Development Co., Mount Vernon, Ohio	1	10,000	R. S. Lord	Robert J. Lindsay	Thomas B. Hall	B. E. Hepler		J. H. Biddison	
Wentz, L. H. (Oil Division) Masonic Bldg., Ponca City, Okla.	2	15,000	L. H. Wentz				O. H. Schoenwald	O. H. Schoenwald	S. C. Harkness
West Coast Refining Co., 620 Pacific Finance Bldg., Los Angeles, Calif.	1	50,000	A. H. Bradford	M. D. Schatzman	William B. Ogden			W. M. Bradford	H. Bradnock
Western Oil Corp. of Texas, 624 Hamilton Bldg., Wichita Falls, Texas	2	12,000	J. F. Darby	George W. Snedden	Carl Purse	C. F. Lynde	J. G. Gilbert	J. R. Gilbert	Lee Loefler
Wilcox, H. F., Oil & Gas Co., Sixth and Denver Sts., Tulsa	4	16,000	H. F. Wilcox	G. A. Dye	M. P. Appleby	M. P. Appleby	H. E. Bangert	H. W. McCullah	F. H. Dunn
Wilshire Oil Co., Inc., 2455 East Twenty-Seventh St., Los Angeles, Calif.	2	100,000	George L. Machris	Alfred P. Machris	Victor A. Machris	Alfred P. Machris	W. D. Smith		
Wirt Gasoline Co., Bradford, Pa.	1	500	Nathan Nichols					J. L. Keyser	
Wiser Oil Co., Sistersville, W. Va.	4	2,600	E. A. Durham	A. C. Jackson*	L. E. Gregg	P.W.Neuenschw'd'r		A. E. Freeland	George S.Bradfield
Wolverine Petroleum Corp., Shell Bldg., St. Louis, Mo.	6	20,700	U. deB. Daly	J. C. Van Eck*	L. E. Beszelzen	L. E. Beszelzen	G. G. Woodruff	S. S. Smith	C. B. Singleton
Wright, J. H. Estate, Box 878, Sapulpa, Okla.	1	4,500	Rosa B. Wright—	Executrix			M. L. Murphy		Frank Denham

ADDITIONAL VICE PRESIDENTS*

American Refining Co., Inc.—N. B. Chenault.
Arkansas Natural Gas Corp.—J. R. Munce.
Bell Oil & Gas Co.—Albert Finston.
Big Lake Oil Co.—E. C. Stearns, vice president and general manager.
Bryan, Phelps & Ilseng—Ione Bryan.
California Co., The—W. H. Berg, M. E. Lombardi, J. M. Atwell.
Calumet Oil Co.—A. J. McDermott.
Carter Oil Co.—W. T. Funk, Richardson Pratt.
Chestnut & Smith Corp.—D. E. Buchanan.
Coltex Corp.—C. H. Smith.
Columbian Gasoline Corp.—C. H. Smith.
Continental Oil Co.—E. S. Karstedt.
De Soto Gasoline Co.—W. B. Flynn, P. M. Wiess.
Dinsmoor & Co.—F. K. Sellers.
Dixie Oil Co., Inc.—F. O. Prior.
Eagle-Picher Lead Co.—J. A. Schaeffer, George W. Potter, R. M. Roosevelt, W. E. Maston.
Empire Oil & Refining Co.—H. R. Straight, W. D. Frueauff, Floyd C. Brown, W. A. Jones.
Enfisco Oil Corp.—Sampel L. Smith.
Equitable Gas Co.—B. W. Lynch, F. R. Phillips.
Federal Oil & Gas Co.—M. M. Bauer.
Foster Petroleum Corp.—Paul F. Dahlgren.
General Petroleum Corp. of California—E. R. Rich, R. E. Maynard, W. S. McLaine, A. L. Weil.
Gilmore, Forrest E., Co.—E. D. Ulrich.
Gilmore-Dabney Gasoline Corp.—Robert M. Pease.
Gulf Production Co.—Underwood Nazro, W. B. Pyron.
Gypsy Oil Co.—K. Winship.
Highway Oil Refining Corp.—E. D. Davis.
Hope Construction & Refining Co.—John B. Tonkin.
Humble Oil & Refining Co.—H. C. Weiss, James Anderson, J. S. Bonner, F. P. Sterling, W. W. Fondren.
Huntington Development & Gas Co.—W. W. Freeman.
Independent Oil & Gas Co.—O. L. Cordell, Villard Martin, Gillette Hill.
Kentucky Pipe Line Co.—L. S. Strang.
Liberty Oil & Gas Co.—H. C. Eba.
Lomita Gasoline Co.—C. M. Cotton.
Lone Star Gas Co.—F. L. Chase, Karl F. Griffith.
Louisiana Oil Refining Corp.—B. P. Crittenden, George E. Hite, Jr.
McMan Oil & Gas Co.—H. H. Rogers, John Rogers.
Magnolia Petroleum Co.—F. V. Faulkner, W. H. Francis, W. C. Proctor, E. E. Plumly, D. C. Stewart, E. P. Angus, R. H. Kinsloe.
Manhattan Oil Co. of Kansas—J. P. Howe.
Manufacturers Light & Heat Co.—C. F. Neiman, T. W. Crawford.
Marland Production Co.—W. Jervis.
Mid-Continent Petroleum Corp.—D. W. Moffitt, G. O. Moody.
Mid-Kansas Oil & Gas Co.—C. L. Fleming.
Midwest Refining Co.—H. C. Bretschneider, H. G. Naylor.
Monroe-Louisiana Carbon Co.—C. H. Smith.
National Oil & Development Co.—L. J. Butler.
Ohio Oil Co.—J. K. Kerr, John McFadyen, C. L. Fleming.
Oklahoma Natural Gas Corp.—Robert W. Hendee, G. V. Pach, M. E. Simond, G. L. Ghegan, A. G. Leeds.
Orfic Gasoline Production Co.—E. L. Townsley.
Petroleum Exploration—A. C. Jackson.
Phillips Petroleum Co.—Clyde H. Alexander, John H. Kane, William N. Davis, H. E. Koopman.
Preston Oil Co.—T. B. Gregory, K. C. Krick, D. M. Wilson.
Producers Oil Corp.—Forest J. Wilson.
Producers & Refiners Corp.—R. E. Wertz.
Reserve Petroleum Co.—W. M. Irish III.
Reservoir Hill Gasoline Co.—Charles S. Jones.
Rice Ranch Oil Co.—E. T. Off.
Rio Grande Oil Co.—A. M. Lockhart, Charles S. Jones.
Sand Springs Home (Gasoline Dept.)—T. H. Steffens, P. E. Estell.
Shaffer Oil & Refining Co.—F. C. Gordon, R. J. Graf, L. B. Riddle, W. E. Moody, E. J. McKay, B. L. Majewski.
Signal Hill Oil Co.—J. S. Wallace, A. M. Kelley, J. C. Graves, C. B. Garretson.
Simms Oil Co.—F. R. Schneider.
Sinclair Oil & Gas Co.—H. B. Smith, H. A. King.
Skelly Oil Co.—F. A. Pielsticker, H. M. Stalcup, R. L. Lyons.
Southern Oil Co.—James A. Dunn.
South Penn Oil Co.—F. J. Huffman.
Standard Gasoline Co.—H. M. Storey, H. T. Harper, W. H. Berg.
Standard Oil Co. (Indiana)—R. H. McElroy, E. J. Bullock, R. E. Humphreys.
Superior Oil Corp.—J. H. O'Rear.
The Texas Company—W. W. Bruce, T. J. Donoghue, D. J. Moran, G. L. Noble, T. Rieber.
Texas Pacific Coal & Oil Co.—E. R. Lederer, LaRue Smith.
Tidal Refining Co.—W. C. Franklin, C. R. Barton.
Tidal-Western Oil Corp.—A. F. Garrett, C. R. Barton.
Tiger Mountain Oil Co.—Roy R. Poe.
Transcontinental Oil Co.—J. C. Adams, M. W. Bottomfield, J. M. Holliday.
United Carbon Co.—C. E. Slagle, L. S. Horner.
United States Refining Co.—William A. Kirk.
Union Oil Co. of California—L. P. St. Clair, R. D. Matthews, W. W. Orcutt, F. N. Boggs.
Viking Gasoline Corp.—H. E. Hohle.
Virginian Gasoline & Oil Co.—S. F. Magor.
Wiser Oil Co.—W. L. Sutton.
Wolverine Petroleum Co.—L. F. Lydon, L. E. Beszelzen.
†E. L. Peck, general manager of gasoline plants, Empire Oil & Refining Co.
‡Members managing committee, Libby-Owen.
§M. C. Schneider, operating manager of natural gasoline plants; F. F. Schauer, general manager.
¶M. F. Powers, Felix Quinlan, Jr., and Felix Quinlan, Sr., partnership.
‖J. A. Talbot, chairman of the board, Signal Hill Oil & Gas Co.
**Chairman of directors, St. Helens Petroleum Co., Ltd.
††A. P. McEachern, Los Angeles secretary; R. H. Young, London secretary, St. Helens Petroleum Co., Ltd.

NATURAL GASOLINE PLANTS BY STATES

(Continued from Page 101)

CALIFORNIA (Continued)

Company and plant address—	Field location—	Type of plant	Daily cap'y gallons
	Angeles County	Absp.	30,000
Gilmore-Dabney Gasoline Corp., 2423 East 28th St., Los Angeles	Signal Hill Field, Los Angeles County	Absp.	30,000
Gilmore-Dabney Gasoline Corp., 2423 East 28th St., Los Angeles	Signal Hill Field, Los Angeles County	Absp.	30,000
Highway Gasoline Co.	Ventura Field	Absp.	25,000
Honolulu Consolidated Oil Co., Los Angeles	Midway	Absp.	15,000
Honolulu Consolidated Oil Co.	Visalia, Midway Field	Absp.	25,000
La Habra Gasoline Co., Los Angeles	Brea	A-C	5,000
Lomita Gasoline Co., P. O. Box 669, Long Beach	Farm lot, No. 41 American Colony Tract	Absp.	8,500
Lovell Gasoline Co., Los Angeles	Cal-Pet. No. 6 Midway Field	Absp.	6,000
Lovell Gasoline Co., Los Angeles	Ethel "D" lease, Sunset Field	Absp.	7,000
Montebello Oil Co., Fillmore	Shields lease	Absp.	3,000
National Products Co., Los Angeles	Midway	Absp.	3,000
Norwalk Co., The, 1018 Board of Trade Bldg., Los Angeles	Santa Fe Springs	Absp.	125,000
Olinda Gasoline Co., Los Angeles	Olinda	Comp.	5,000
Pacific Western Oil Co.	Alamitos Heights	Absp.	14,000
Pacific Western Oil Co.	Rubel lease, Inglewood Field	Absp.	15,000
Pan American Petroleum Co.	Sec. 3-31-24, Elk Hills Field	Comp.	12,000
Pan American Petroleum Co.	Fee property, Long Beach Field	C-A	40,000
Pan American Petroleum Co.	Fee property, Torrance Field	C-A	2,000
Pan American Petroleum Co.	Rincon lease, Ventura Field	Comb.	20,000
Rancho La Brea Oil Co., 1105 California Bank Bldg., Los Angeles	Salt Lake, Los Angeles Co.	A-C	5,000
Reservoir Hill Gasoline Co., 417 South Hill St., Los Angeles	Signal Hill	Comp.	18,000
Rice Ranch Oil Co., Orcutt	Santa Maria Field	Absp.	6,000
Rice Ranch Oil Co., Orcutt	Santa Maria Field	Absp.	2,500
Rio Grande Oil Co., Los Angeles	Santa Fe Springs	Absp.	23,000
Rio Grande Oil Co., Los Angeles	Elwood-Terrace	Absp.	20,000
Ryan & Hackett Co., Inc., 511 Associated Realty Bldg., Los Angeles	Signal Hill Field	Absp.	3,000
Shell Oil Co. of California	Puente lease, Coyote Hills Field	Absp.	36,000
Shell Oil Co. of California	Reyes lease, Dominguez Field	Absp.	7,000
Shell Oil Co. of California	Rindge lease, Inglewood Field	Absp.	2,000
Shell Oil Co. of California	Careaga, Santa Maria Field	Absp.	3,000
Shell Oil Co. of California	Gosnell, Long Beach Field	Absp.	180,000
Signal Oil & Gas Co.	Long Beach Field	Absp.	20,000
Signal Oil & Gas Co.	Long Beach Field	Absp.	30,000
Signal Oil & Gas Co.	Long Beach Field	Absp.	30,000
Signal Oil & Gas Co.	Long Beach Field	Absp.	15,000
Signal Oil & Gas Co.	Long Beach Field	Absp.	15,000
Shanley Gasoline Co.	Roseboom	Absp.	6,000
Signal Hill Gasoline Co., A. G. Bartlett Bldg., Los Angeles†	Signal Hill	Absp.	15,000

(Continued on Page 116)

COOPER AND BESSEMER

UNITED FOR SINGLE PURPOSE

The C. & G. Cooper Company and the Bessemer Gas Engine Company have combined for one, single, primary reason: to offer the Oil and Gas Industry greater service and greater engine values than ever before obtainable at any price.

ELIMINATES DUPLICATION OF EXPENSE

Recently there has been a tendency for the Cooper and Bessemer lines to overlap. Now, by consolidation of companies, this duplication of expense is eliminated. Power users are bound to profit from the resulting economies in manufacturing, engineering and sales costs. Rapid strides will be made in the way of research, engineering, and field service.

COMPANIES MERGED AT HEIGHT

The merger found the Cooper company and the Bessemer company at the high point of their individual business success. Bessemer had just completed its largest month's production in history. Cooper had just secured the largest single order ever placed for gas engines—18,000 horse power.

127 YEARS' COMBINED EXPERIENCE

With Cooper's 96 years of engine-building, and Bessemer's 31 years, The Cooper-Bessemer Corporation inherits a combined experience of 127 years. Cooper has long been the leader in the 4-cycle engine field, especially for service in the natural gas and oil industry. Bessemer has held an equally strong position in the pumping and drilling engine and the 2-cycle compressor

Unite for Greater Service

engine fields—also in the marine and stationary Diesel engine fields.

OWNERSHIP REMAINS THE SAME

The individuals responsible for Cooper and Bessemer success are still the largest shareholders and retain active control. The management of the two companies has been consolidated. Engineering and manufacturing efforts have been unified and standardized. Sales offices are under one man's direct control, but the Cooper and Bessemer sales personnel will be retained.

LINES COMBINED AND STANDARDIZED

Cooper, Bessemer, and Hope engines will be manufactured in standard sizes up to 1500 B. H. P. to meet every condition of service. The combined lines will include small drilling and pumping engines, 2 or 4-cycle compressor engines, vertical or horizontal engines for general power purposes, Diesel oil engines for oil pipe line and electric power generation.

FRIENDLY SERVICE WILL CONTINUE

No matter when you buy your Cooper, Bessemer or Hope—you will get the most advanced, the most reliable, the most economical unit of its type. The same personal contacts, the same friendly service and frankness that built our business will continue. That is our pledge.

THE COOPER-BESSEMER CORPORATION

FORMERLY

The C. & G. Cooper Company and The Bessemer Gas Engine Company

MT. VERNON, OHIO PLANTS GROVE CITY, PENNA.

NATURAL GASOLINE PLANTS BY STATES

CALIFORNIA (Continued)

Company and plant address—	Field location—	Type of plant	Daily cap'y gallons
Signal Hill Gasoline Co., A. G. Bartlett Bldg., Los Angeles†	Signal Hill	Absp.	11,000
Signal Hill Gasoline Co., A. G. Bartlett Bldg., Los Angeles†	Signal Hill	Absp.	35,000
Signal Hill Gasoline Co., A. G. Bartlett Bldg., Los Angeles†	Maricopa	Absp.	3,000
Signal Hill Gasoline Co., A. G. Bartlett Bldg., Los Angeles†	Huntington Beach	Absp.	15,000
Signal Hill Gasoline Co., A. G. Bartlett Bldg., Los Angeles†	Seal Beach	Absp.	35,000
Signal Hill Gasoline Co., A. G. Bartlett Bldg., Los Angeles†	Maricopa	Absp.	2,000
Southwestern Engineering Corp.	Huntington Beach	Absp.	2,500
Southwestern Engineering Corp.	Huntington Beach	Absp.	*1,800
Standard Engineering Co., 833 Roosevelt Bldg., Los Angeles	Newhall	Absp.	*10,000
Standard Engineering Co., 833 Roosevelt Bldg., Los Angeles	Riverside	Absp.	*2,000
Standard Gasoline Co., 225 Bush St., San Francisco	Santa Fe Springs	A-C	‡5,497
Standard Gasoline Co., 225 Bush St., San Francisco	Santa Fe Springs	A-C	35,896
Standard Gasoline Co., 225 Bush St., San Francisco	Montebello	A-C	11,376
Standard Gasoline Co., 225 Bush St., San Francisco	Montebello	Booster	*
Standard Gasoline Co., 225 Bush St., San Francisco	Murphy-Coyote	A-C	10,870
Standard Gasoline Co., 225 Bush St., San Francisco	Kraemer	A-C	12,519
Standard Gasoline Co., 225 Bush St., San Francisco	Brea	A-C	3,032
Standard Gasoline Co., 225 Bush St., San Francisco	Huntington Beach	A-C	6,810
Standard Gasoline Co., 225 Bush St., San Francisco	Huntington Beach	A-C	5,720
Standard Gasoline Co., 225 Bush St., San Francisco	Huntington Beach	A-C	23,750
Standard Gasoline Co., 225 Bush St., San Francisco	Huntington Beach	A-C	10,866
Standard Gasoline Co., 225 Bush St., San Francisco	Huntington Beach	A-C	6,918
Standard Gasoline Co., 225 Bush St., San Francisco	Huntington Beach	A-C	8,750
Standard Gasoline Co., 225 Bush St., San Francisco	Huntington Beach	Booster	§
Standard Gasoline Co., 225 Bush St., San Francisco	Seal Beach	A-C	25,000
Standard Gasoline Co., 225 Bush St., San Francisco	Seal Beach	A-C	12,000
Standard Gasoline Co., 225 Bush St., San Francisco	Long Beach	A-C	3,000
Standard Gasoline Co., 225 Bush St., San Francisco	Long Beach	A-C	5,345
Standard Gasoline Co., 225 Bush St., San Francisco	Long Beach	Absp.	24,000
Standard Gasoline Co., 225 Bush St., San Francisco	Long Beach	C-A	12,000
Standard Gasoline Co., 225 Bush St., San Francisco	Dominguez	C-A	4,285
Standard Gasoline Co., 225 Bush St., San Francisco	Athens	C-A	1,670
Standard Gasoline Co., 225 Bush St., San Francisco	Inglewood	C-A	6,900
Standard Gasoline Co., 225 Bush St., San Francisco	Inglewood	C-A	*
Standard Gasoline Co., 225 Bush St., San Francisco	Inglewood	C-A	20,209
Standard Gasoline Co., 225 Bush St., San Francisco	Torrance	C-A	1,350
Standard Gasoline Co., 225 Bush St., San Francisco	Torrance	C-A	6,325
Standard Gasoline Co., 225 Bush St., San Francisco	Whittier	C-A	627
Standard Gasoline Co., 225 Bush St., San Francisco	Cypress	Absp.	6,000
Standard Gasoline Co., 225 Bush St., San Francisco	Ventura	C-A	12,000
Standard Gasoline Co., 225 Bush St., San Francisco	Ventura	C-A	32,000
Standard Gasoline Co., 225 Bush St., San Francisco	Ventura	C-A	32,000
Standard Gasoline Co., 225 Bush St., San Francisco	Newhall	C-A	226
Standard Gasoline Co., 225 Bush St., San Francisco	Taft	C-A	11,500
Standard Gasoline Co., 225 Bush St., San Francisco	Taft	C-A	10,800
Standard Gasoline Co., 225 Bush St., San Francisco	Taft	C-A	5,500
Standard Gasoline Co., 225 Bush St., San Francisco	Taft	Absp.	30,000
Standard Gasoline Co., 225 Bush St., San Francisco	Taft	C-A	4,250
Standard Gasoline Co., 225 Bush St., San Francisco	Taft	C-A	4,500
Standard Gasoline Co., 225 Bush St., San Francisco	Taft	C-A	5,500
Standard Gasoline Co., 225 Bush St., San Francisco	Taft	C-A	5,800
Standard Gasoline Co., 225 Bush St., San Francisco	Taft	C-A	4,750
Standard Gasoline Co., 225 Bush St., San Francisco	Taft	C-A	*
Standard Gasoline Co., 225 Bush St., San Francisco	Wheeler Ridge	C-A	1,000
State Gasoline Corp.	Los Alamitos	C-A	24,000
St. Helens Petroleum Co., Ltd., 1204 Western Pacific Bldg., Los Angeles	Sec. 2-2s-12e, Los Angeles County	Absp.	750
St. Helens Petroleum Co., Ltd., 1204 Western Pacific Bldg., Los Angeles	Sec. 22-32s-24e, Kern Co	Absp.	*300
St. Helens Petroleum Co., Ltd., 1204 Western Pacific Bldg., Los Angeles	Sec. 16-32-24, Kern Co.	Absp.	2,500
St. Helens Petroleum Co., Ltd., 1204 Western Pacific Bldg., Los Angeles	Sec. 18-35-9w, Orange Co.	Absp.	300
Superior Oil Co.	Joughin lease	Absp.	4,500
The Texas Company (California), Signal Hill.	Los Angeles County	Absp.	14,000
The Texas Company (California), Signal Hill.	Los Angeles County	Absp.	20,000
The Texas Company (California), Signal Hill.	Los Angeles County	Absp.	17,000
The Texas Company (California), Athens	Los Angeles County	Absp.	12,000
The Texas Company (California), Signal Hill.	Los Angeles County	Absp.	51,825
The Texas Company (California), Signal Hill.	Los Angeles County	Absp.	12,000
The Texas Company (California), Long Beach.	Los Angeles County	Absp.	17,000
The Texas Company (California), Coalinga	Kettleman Hills, Kings County	Absp.	40,000
The Texas Company (California), Santa Fe Spgs.	Los Angeles County	Absp.	54,700
The Texas Company (California), Huntington Beach	Los Angeles County	Absp.	20,000
The Texas Company (California), Montebello.	Los Angeles County	Absp.	2,500
The Texas Company (California), South Mountain	Ventura County	Comp.	12,000

CALIFORNIA (Continued)

Company and plant address—	Field location—	Type of plant	Daily cap'y gallons
The Texas Company (California), Fillmore	Shields lease, Ventura County	Absp.	3,000
Union Oil Co. of California, Seventh and Hope Sts., Los Angeles	Orcutt	Absp.	24,000
Union Oil Co. of California, Seventh and Hope Sts., Los Angeles	Ventura	Absp.	500
Union Oil Co. of California, Seventh and Hope Sts., Los Angeles	Rosecrans	Absp.	34,000
Union Oil Co. of California, Seventh and Hope Sts., Los Angeles	Dominguez	Absp.	45,000
Union Oil Co. of California, Seventh and Hope Sts., Los Angeles	Santa Fe Springs	Absp.	100,000
Union Oil Co. of California, Seventh and Hope Sts., Los Angeles	Brea	Absp.	24,000
Union Oil Co. of California, Seventh and Hope Sts., Los Angeles	Richfield	Absp.	23,000
Union Oil Co. of California, Seventh and Hope Sts., Los Angeles	Huntington Beach	Absp.	10,000
Union Oil Co. of California, Seventh and Hope Sts., Los Angeles	Ventura	Absp.	500
United States Refining Co., 1001 Board of Trade Bldg., Los Angeles	Davidson City	Absp.	25,000
Universal Oil Co., Lost Hills	Lost Hills	Absp.	3,000
Universal Consolidated Oil Co.	Fee property, Lost Hills Field	Absp.	4,000
West Coast Refining Co., 620 Pacific Finance Bld., Los Angeles	Richfield	Absp.	50,000
West Coast Refining Co., 620 Pacific Finance Bld., Los Angeles	East Coyote	Absp.	10,000
Western Natural Gasoline Co.	Long Beach Field	Absp.	20,000
Western Natural Gasoline Co.	Long Beach Field	Absp.	1,500
Western Natural Gasoline Co.	Long Beach Field	Absp.	1,500
Western Natural Gasoline Co.	Long Beach Field	Absp.	1,000
Wilshire Oil Co., Inc., Los Angeles	Santa Fe Springs	Absp.	50,000
Wilshire Oil Co., Inc., Los Angeles	Santa Fe Springs	Absp.	50,000

†Company is owned 100 per cent by Richfield Oil Co. of California. ‡Capacities of all Standard Oil Co. of California plants in M cubic feet; approximate capacity 550,000 gallons daily. §Dismantled April 15, 1928.

COLORADO

Continental Oil Co., Fort Collins	NW Sec. 30-8-68 Larimer County	Absp.	1,000
Continental Oil Co., Fort Collins	NW Sec. 6-9-68 Larimer County	Absp.	10,000

ILLINOIS

Abbott, John S. et al		Comp.	300
American Oil Development Co., 1414 Oliver Bldg., Pittsburgh, Pa.	Robinson	Comp.	145
American Oil Development Co., 1414 Oliver Bldg., Pittsburgh, Pa.	Eaton	Comp.	125
American Oil Development Co., 1414 Oliver Bldg., Pittsburgh, Pa.	Oblong	Comp.	43
Arkansas Fuel Oil Co., Robinson	Robinson	Absp.	500
Associated Producers Co., 11 Broadway, New York, N. Y.	Crawford County	Comp.	1,300
Bell Brothers, Robinson	Crawford County	Comp.	130
Bell Brothers, Robinson	Cumberland County	Comp.	150
Big Four Oil & Gas Co., Pittsburgh, Pa.	Lawrence County (3)	Comp.	1,800
Borough, Breen and others		Comp.	350
Brenneman & MacDonnel, Oblong	Sec. 6-6-13	Absp.	1,000
Brenneman & MacDonnel, Oblong	Sec. 7-7-13	Comp.	250
Bruner, A. & Co., Tulsa, Okla.	NE Sec. 36-3-12 Lawrence County	Comp.	250
International Oil & Gas Co., Washington, Pa.	Crawford County	Comp.	2,000
Kennedy, W. C. Co., Bradford, Pa.	Crawford County (4)	Comp.	400
Kewanee Oil & Gas Co., Robinson	Crawford County (5)	Comp.	362
Kewanee Oil & Gas Co., Robinson	Lawrence County (2)	Comp.	120
Liberty Oil & Gas Co., Warren, Pa.	Oblong Sec. 33-7-13w, Sec. 4-6-13w	Comp.	83
Lord, Henry C., Robinson	Sec. 18-6n-13w Crawford County	Comp.	50
Mahutska Oil Co., Robinson	Sec. 10-6-13	Comp.	1,000
Mahutska Oil Co., Robinson	Sec. 28-6-13	Comp.	500
Mahutska Oil Co., Robinson	Sec. 17-7-13	Comp.	500
Mahutska Oil Co., Robinson	Sec. 30-7-13	Comp.	500
Mallory & Crawford, Bradford, Pa.	Crawford County	Comp.	500
Nolan & Lamberton, Tulsa, Okla.	Sec. 12-7-4 Crawford County	Comp.	35
Ohio Oil Co., Casey	Clark County	Comp.	124
Ohio Oil Co., Casey	Clark County	Comp.	241
Ohio Oil Co., Casey	Cumberland County	Comp.	1,150
Ohio Oil Co., Casey	Cumberland County	Comp.	437
Ohio Oil Co., Oblong	Crawford County	Comp.	405
Ohio Oil Co., Oblong	Crawford County	Comp.	242
Ohio Oil Co., Oblong	Crawford County	Comp.	310
Ohio Oil Co., Robinson	Crawford County	Comp.	243
Ohio Oil Co., Hardinsville	Crawford County	Comp.	756
Ohio Oil Co., Hardinsville	Crawford County	Comp.	100
Ohio Oil Co., Oblong	Crawford County	Comp.	342
Ohio Oil Co., Annapolis	Crawford County	Comp.	109
Ohio Oil Co., Stoy	Crawford County	Comp.	310
Ohio Oil Co., Stoy	Crawford County	Comp.	833
Ohio Oil Co., Oblong	Crawford County	Comp.	200
Ohio Oil Co., Robinson	Crawford County	Comp.	472
Ohio Oil Co., Oblong	Crawford County	Comp.	1,130
Ohio Oil Co., Lawrenceville	Lawrence County	Comp.	270
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	1,170
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	570
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	570
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	1,800
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	1,190
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	990
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	1,000
Ohio Oil Co., Lawrenceville	Lawrence County	Comp.	500
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	1,050
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	1,050
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	350
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	390
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	1,400
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	1,500
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	1,500
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	390
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	1,200
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	375
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	1,140
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	770
Rogers, R. G., Oil Co.	Oblong, 6 miles NW	Comp.	200
Snowden & McSweeney, New York, N. Y.	Bridgeport (3)	Comp.	1,800
Southern Oil Co., Pittsburgh, Pa.	Casey	Comp.	135
Splane, W. W., Oil City, Pa.	Robinson	Comp.	300
Stranahan and Cheuvront, Oblong	Sec. 11-17-14	Comp.	50
Stranahan and Cheuvront, Oblong	Sec. 25-7-13	Comp.	60
Stranahan and Cheuvront, Oblong	Sec. 22-6-13	Comp.	70
Vacuum Gasoline Co., Lawrenceville	Lawrence County	Comp	3,000
Vincennes Oil & Gas Co., Vincennes, Ind.	Lawrence County	Comp.	5,000
Warner-Caldwell Oil Co., Oblong	Sec. 16-7n-13w	Comp.	150
Wiser Oil Co., Bartlesville, Okla.	Robinson	Comp.	100

KANSAS

Amerada Petroleum Corp., Keighley	Section 27-27s-7e	Absp.	4,000
Bailey, A. W., Neodesha	Neodesha	Comp.	*50
Barco Gasoline Co., Peru	Chautauqua County	Comp.	500

(Continued on Page 119)

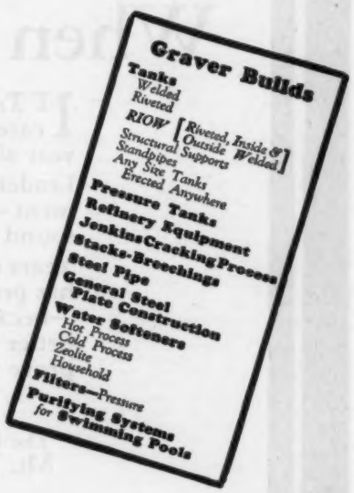
Your cooling water— may be the most troublesome and expensive part of your plant

Natural Gasoline Plants

You don't have the opportunity to choose your water supply at a gasoline plant. You take it "as is". And generally "as is" means "hard water" — "muddy water" — "limited water".

If this is the case, and it generally is, you can rest assured that a water softener will be the best paying investment you ever made. You know what hard water will do to your cooling coils by depositing scale, making adequate cooling a problem. In your oil engines it's the same trouble, coating the cylinder with scale and preventing adequate cooling. In the boilers, scale coats the tubes and walls, preventing the ready absorption of heat.

All this trouble can be eliminated and is being eliminated continually by Graver Water Softeners. There are many installations within easy reach for inspection —anywhere in the oil country. In planning a new plant or in any of your operating plants let us get a sample of water, analyze it and recommend the treatment which will give you absolute freedom from hard water taxes. It won't obligate you and will show you what water softening can save you.



Graver Corporation builds all types of water treating equipment. Because of this we are able to make an unbiased survey and recommendation of the type or combination of types of treatment for each water treating problem.

Our Technical Division is at your service. Write us. Give us your problems.

GRAVER Corporation Founded 1857

EAST CHICAGO, INDIANA

NEW YORK Grand Cent. Term. | CHICAGO America Fore Bldg. | FORT WORTH Petroleum Bldg. | LOS ANGELES Pacific Nat'l Bank Bldg.

No. 1 Air Plant of the Mid-Continent Petroleum Corp., operating a battery of 165 H.P. Bessemer Type Ten Compressors.

When Shrewd Buyers Re-order

IT TAKES more than just a well established name to induce careful buyers to re-order the same make of compressor year after year.

Leaders in the Oil Industry—the largest users of Power Equipment—consistently re-order Bessemers simply because it is sound business economy.

Years of experience with thousands of engines and compressors has proved to them that Bessemers offer them the greatest value—because they cost less to operate and maintain, do their work better and stay on the job longer. Their performance records prove it!

THE COOPER-BESSEMER CORPORATION

formerly

The C. & G. Cooper Company and the Bessemer Engine Company

Mt. Vernon, Ohio. Grove City, Pa.

BESSEMER

NATURAL GASOLINE PLANTS BY STATES

KANSAS (Continued)

Company and plant address—	Field location—	Type of plant	Daily cap'y gallons
Barnsdall Oil Co., R No. 1, Box 173, Oxford	W. half NW Section 20-33-3	Absp.	3,400
Denman Brothers	Sedan	Comp.	100
Empire Oil & Refining Co., Empire-Masonic Bldg., Bartlesville, Okla.	Section 13-34-3e Cowley County	Absp.	10,000
Empire Oil & Refining Co., Empire-Masonic Bldg., Bartlesville, Okla.	Section 13-35-13e Montgomery County	Absp.	10,000
Empire Oil & Refining Co., Empire-Masonic Bldg., Bartlesville, Okla.	Section 16-23-9e Greenwood County	Absp.	10,000
Empire Oil & Refining Co., Empire-Masonic Bldg., Bartlesville, Okla.	Section 29-23-10e Greenwood County	Comp.	8,000
Empire Oil & Refining Co., Empire-Masonic Bldg., Bartlesville, Okla.	Section 8-23-11e Greenwood County	Absp.	8,000
Empire Oil & Refining Co., Empire-Masonic Bldg., Bartlesville, Okla.	Section 9-26-8e Butler County	Absp.	5,000
Empire Oil & Refining Co., Empire-Masonic Bldg., Bartlesville, Okla.	Section 17-32-1e, Sumner County	Absp.	*8,000
Empire Oil & Refining Co., Empire-Masonic Bldg., Bartlesville, Okla.	Section 2-23-9e Greenwood County	Absp.	3,000
Empire Oil & Refining Co., Empire-Masonic Bldg., Bartlesville, Okla.	Section 14-23-11e Greenwood County	Comp.	3,000
Empire Oil & Refining Co., Empire-Masonic Bldg., Bartlesville, Okla.	Section 17-28-1e Sedgwick County	Absp.	35,000
Independent Oil & Gas Co., Madison	E half Sec. 10-23-9	Comp.	8,000
Independent Oil & Gas Co., Madison	SE NW Sec. 12-22-10	Comp.	5,000
Kansas Gasoline Co., 1504 Exchange Bnk. Bldg., Tulsa, Okla.	Sec. 24-32-4e Cowley County	Absp.	5,000
Pep Gasoline Co., Box 208, Sedan	2 miles E of Sedan	Comp.	1,600
Shell Petroleum Corp., Oxford	SE Sec. 25-31s-2e	Absp.	9,000
Shell Petroleum Corp., Oxford	NE Sec. 14-32s-2e	Absp.	6,000
Sinclair Oil & Gas Co., Sinclair Bldg., Tulsa, Okla.	Madison	Comp.	7,500
Texas Company, The, O'Brien Switch	Sec. 31-30-6e Cowley County	Absp.	10,000
Texas Company, The, Gordon	Sec. 28-26n-5e Butler County	Absp.	6,500
Tidal Refining Co., Douglas	Sec. 29-5s-24e	Absp.	10,000
Union Gasoline Co., Commerce Natl. Bnk. Bldg., Independence	4½ miles S of Caney	Absp.	2,500
Washington Development Co., Wellington	Wellington	Absp.	10,000

KENTUCKY

Coast Oil Co., Monticello	Monticello	Comp.	200
Daugherty, C. E. & Co., Owensboro	Monticello	Comp.	150
Heck, W. B. & Co., Box 164, Owensboro	Monticello	Comp.	150
Kentucky Pipe Line Co., Louisville	Winchester	Absp.	2,200
Petroleum Exploration Co., Sistersville, W. Va.	Leeco	Comp.	400
Superior Oil Corp., Wright Bldg., Tulsa, Okla.	Tarrent	Absp.	5,000
Swiss Oil Corp., 402 Wolf-Wile Bldg., Lexington	Fixer	Absp.	1,500
United Carbon Co., Langley	Floyd County	Comp.	1,000
United Carbon Co., Ashland	Irvine	Comp.	1,000
Viking Gasoline Corp., Means	Menifee County	Char.	*1,000
Virginian Gasoline & Oil Co., Catlettsburg	Boyd	Absp.	24,000
Virginian Gasoline & Oil Co., Louisa	Wayne	Char.	3,500

LOUISIANA

Arkansas Fuel Oil Co., Homer	Langston farm	Comp.	2,000
Arkansas Natural Gas Corp., Monroe	Magenta Plantation	Absp.	8,000
Carson Carbon Co., The, 432 New Street, Cincinnati, Ohio	Collinston	Absp.	500
Coltexo Corp., 45 E. 42nd St., New York N. Y.	Hammock, Ouachita Par.	Absp.	8,000
Columbian Gasoline Corp., Fairbanks	Ouachita Parish	Absp.	16,000
Columbian Gasoline Corp., Fowler	Ouachita Parish	Absp.	6,000
Columbian Gasoline Corp., Swartz	Ouachita Parish	Absp.	16,000
Columbian Gasoline Corp., Spyker	Morehouse Parish	Absp.	8,000
Columbian Gasoline Corp., Perryville	Morehouse Parish	Absp.	4,000
DeSoto Gasoline Co., P.O. Box 179, Houston, Texas	Sec. 36-13-12 DeSoto Parish	Comp.	900
Dixie Oil Co., Inc., Shreveport	Sec. 13-21-15 Caddo Parish	Absp.	10,000
Gulf Refining Co. of Louisiana, Mooringsport	Sec. 18-20-15 Caddo Parish	Comp.	8,000
Gulf Refining Co. of Louisiana, Homer	Sec. 19-21-7 Claiborne Parish	Absp.	30,000
Herkness, J. Smylie, Bastrop	Sec. 18-20n-5e Morehouse Parish	Absp.	1,000
Huber, J. M. Co., of Louisiana, Inc., Swartz	Sec. 5-5e-18n	Absp.	5,000
Louisiana Gas Co., Cedar Grove	10 miles NE of Monroe Cedar Grove	Absp.	10,000
Louisiana Oil Refining Corp., P.O. Box 216, Cotton Valley	Sec. 28-21-10w	Absp.	12,000
Magnolia Petroleum Co., Bull Bayou	Sec. 12-12n-11w	Comp.	1,500
Magnolia Petroleum Co., Haynesville	Sec. 28-10n-21w	Absp.	9,400
Magnolia Petroleum Co., Pine Island	Sec. 24-21n-15w	A-C	3,300
Monroe-Louisiana Carbon Co., 45 E. 42nd St., New York, N. Y.	Hancock	Char.	2,000
Natural Gas Products Co., Gilliam	Sec. 23-21n-15w	Absp.	3,500
Ohio Oil Co., Haynesville	Claiborne Parish	Absp.	9,400
Ohio Oil Co., Treat	Webster Parish	Absp.	10,000
Ohio Oil Co., Gilliam	Caddo Parish	Absp.	*
Pala Oil Co., 908 McNeil St., Shreveport	Sec. 17-17-20 Caddo Parish	Comp.	300
Palmer Oil Corp. of Louisiana, P.O. Box 11, Shreveport	Sec. 17-21n-10w, ¼ mile S of Cotton Valley	Absp.	30,000
Palmer Oil Corp. of Louisiana, P.O. Box 11, Shreveport	Sec. 32-19n-5e, 1 mile NE of Swarz	Absp.	20,000
Phillips Petroleum Co., Homer	W half SW Sec. 19-21-7 Claiborne Parish	Comp.	10,500
Reserve Petroleum Co., P.O. Box 172, Haynesville	SW Sec. 30-21n-7w Claiborne Parish	Comp	5,000
Reserve Gas Co., Shreveport	Near Fairground	Absp.	10,000
Reserve Petroleum Co., P.O. Box 172, Haynesville	SE Sec. 15-23n-8w Claiborne Parish	Absp.	8,000
Southwestern Gas & Electric Co., Oil City	Oil City	Comp.	450
Standard Oil Co. of Louisiana, Trees	Caddo Field, near Trees	Absp	7,000
Standard Oil Co. of Louisiana, Homer	Claiborne Field, near Homer	Absp.	6,500
Texas Company, The, Oil City	Sec. 3-20n-16w Caddo Parish	Comp.	4,135
Texas Company, The, Oil City	Sec. 23-21n-15w Caddo Parish	Absp.	13,800
Texas Company, The, Mooringsport	Sec. 19-20n-15w Caddo Parish	Comp.	600
Texas Company, The, Naborton	Sec. 34-13n-12w DeSoto Parish	Comp.	4,000

LOUISIANA (Continued)

Company and plant address—	Field location—	Type of plant	Daily cap'y gallons
Texas Louisiana Producing & Carbon Co., Inc., P.O. Box 693, Monroe	Carbonvale	Absp.	*7,000
Union Gas Products Co., Inc.	12 miles E of Monroe	Comp.	5,000
United Carbon Co., Monroe	Ouachita Parish	Absp.	4,000
United Carbon Co., Monroe	Ouachita Parish	Char.	2,000
United Carbon Co., Monroe	Morehouse Parish	Absp.	2,000
United Carbon Co., Monroe	Ouachita Parish	Char.	5,000
United Carbon Co., Monroe	Ouachita Parish	Absp.	2,000
United States Carbon Co., Bastrop	Sec. 3-20n-5e Morehouse Parish	Absp.	2,000

NEW MEXICO

Phillips Petroleum Co., Artesia	SW NW Sec. 16-18-28 Eddy County	Absp.	9,000

NEW YORK

Empire Gas & Fuel Co., Ltd., Wellsville, N. Y.	1 mile W Andover	Absp.	450
Nathan Nichols	1 mile E of Richburg	Comp.	600
Producers Oil Corp., Olean	Bolivar	Absp.	*700
Wilt Gasoline Co., Richburg	Allegany County	Comp.	500

OHIO

American Oil Development Co., 1414 Oliver Bldg., Pittsburgh, Pa.	Fly	Comp.	650
American Oil Development Co., 1414 Oliver Bldg., Pittsburgh, Pa.	New Matamoras	Comp.	500
East Ohio Gas Co., Whitney Road, Berea	Sec. 52, Cuyahoga County	Char.	1,000
East Ohio Producing & Refining Co., Doylestown	Sec. 22 Wayne County	Char.	6,000
Hope Construction & Refining Co., 545 William Penn Way, Pittsburgh, Pa.	Fly	Comp.	300
Hope Construction & Refining Co., 545 William Penn Way, Pittsburgh, Pa.	New Matamoras	Absp.	1,200
Hope Construction & Refining Co., 545 William Penn Way, Pittsburgh, Pa.	New Matamoras	Comp.	200
Jefferson Gasoline Co., Smithfield	Warren Twp., Jefferson County	Comp.	100
Muskingum Oil Co.		Comp.	25
Norris, Mrs. Jennie, Parkersburg, W. Va.	Sec. 11 Newport Twp. Washington County	Comp.	100
Preston Oil Co., 99 N. Front St., Columbus	Burlington Twp., Licking County	Absp.	20,000
Preston Oil Co., 99 N. Front St., Columbus	Berne Twp., Fairfield County	Absp.	10,000
Preston Oil Co., 99 N. Front St., Columbus	Wayne Twp., Muskingum County	Absp.	2,500
Preston Oil Co., 99 N. Front St., Columbus	Rome Twp., Athens County	Absp.	2,000
Preston Oil Co., 99 N. Front St., Columbus	Stock Twp., Noble County	Absp.	1,500
Preston Oil Co., 99 N. Front St., Columbus	Falls Gore Twp., Hocking County	Absp.	1,000
Preston Oil Co., 99 N. Front St., Columbus	Sheffield Twp., Lorain County	Absp.	3,000
Preston Oil Co., 99 N. Front St., Columbus	Weller Twp., Richland County	Absp.	10,000
Preston Oil Co., 99 N. Front St., Columbus	Sutton Twp., Meigs County	Absp.	2,500
Pure Oil Co., Sistersville, W. Va.	Carson farm, Grandview Twp., Washington County	Comp.	150
Pure Oil Co., Sistersville, W. Va.	Ramsey farm, Independence Twp., Washington County	Comp.	100
Pure Oil Co., Sistersville, W. Va.	Eckart farm, Independence Twp., Washington County	Comp.	125
Reno Oil Co., Wells St., Sistersville, W. Va.	Monroe County	Comp.	175
Reno Oil Co., Wells St., Sistersville, W. Va.	Washington County	Comp.	10
River Gas Co.	New Matamoras	Absp.	125
Southern Oil Co., Schley	Washington County	Comp.	150
Southern Oil Co., Sycamore Valley	Monroe County	Comp.	50
Tuel & Thoenen	Fly	Comp.	450
Tuel & Thoenen	New Matamoras	Comp.	300
Turner, J. E. & Co.	5 miles from Toronto	Comp.	150
Tyler Oil Co., Sistersville, W. Va.	Monroe County	Comp.	100
Washington Development Co., Mount Vernon	Mount Vernon	Absp.	1,000
Wiser Oil Co., Sistersville, W. Va.	Lodi	Comp.	100

OKLAHOMA

A. C. F. Gasoline Co., Box 1561, Tulsa	Sec. 3-18-7	Comp.	750
Akin Gasoline Co., Box 1403, Tulsa	Bartlesville	Absp.	1,000
Akin Gasoline Co., Box 1403, Tulsa	Bixby	Comp.	1,000
Amerada Petroleum Corp., Ardmore	Sec. 20-5s-1e	Absp.	4,000
Amerada Petroleum Corp., Tonkawa	Sec. 34-25n-1w	Absp.	10,000
Amerada Petroleum Corp., Healdton	Sec. 31-2s-2w	Absp.	10,000
Amerada Petroleum Corp., Okmulgee	Sec. 13-12n-11e	Absp.	5,000
Amerada Petroleum Corp., Earlsboro	Sec. 16-9n-5e	Absp.	17,500
Amerada Petroleum Corp., Bowlegs	Sec. 15-18n-6e	Absp.	12,500
Amerada Petroleum Corp., Harjo	Sec. 7-8n-8e	Absp.	30,000
Arthur Oil Co., Sapulpa	Sapulpa	Comp.	1,000
Atlantic Oil Producing Co., Okemah	N half SE Sec. 36-12n-10e, Okfuskee County	Absp.	2,500
Atlantic Oil Producing Co., Slick	S half NE Sec. 16-14n-10e, Creek County	Absp.	2,500
Barco Gasoline Co., Wirt	Carter County	Comp.	2,000
Barnsdall Oil Co., Box 518, Earlsboro	NE NE Sec. 15-9-5	Absp.	20,000
Barnsdall Oil Co., Box 518, Earlsboro	NW NW Sec. 11-8-5	A sp.	18,000
Barnsdall Oil Co., Box 224, Avant	NW SE Sec. 18-23-12	Absp.	1,600
Barnsdall Oil Co., Box 228, Osage	SW SW Sec. 20-21-9	Absp.	1,900
Barnsdall Oil Co., Drawer "A," Barnsdall	NW NW Sec. 29-25-11	Absp.	1,000
Barnsdall Oil Co., R. 8, Box 106, Tulsa	SE Sec. 5-20-12	Absp.	1,100
Barnsdall Oil Co., Box 856, Beggs	NE Sec. 6-14-12	Absp.	3,000
Barnsdall Oil Co., Box 856, Beggs	SW Sec. 23-14-12	Comp.	1,400
Bell Oil & Gas Co., Tulsa	Mounds	Absp.	1,500
Bell Oil & Gas Co., Tulsa	Wynona	Absp.	1,000
Bell Oil & Gas Co., Tulsa	Stone Bluff	Absp.	1,000
Boynton Gasoline Co., Boynton	Boynton	Comp.	500
Bradley, E. A., et al	2½ mi. from Bixby	Comp.	20
Bradstreet, J. G., & Co., Muskogee	Muskogee	Comp.	300
Brady, Swanson & Kelly	Jenks	Comp.	300
Carter Oil Co., Seminole	S half NW Sec. 34-10-6, Seminole County	Absp.	50,000
Carter Oil Co., Seminole	SE SE Sec. 15-9-6, Seminole County	Absp.	60,000
Carter Oil Co., Seminole	W half NE Sec. 23-8-6, Seminole County	Comp.	10,000
Carter Oil Co., Seminole	E half SW NE Sec. 14-7-6, Seminole County	Comp.	50,000
Carter Oil Co., Cromwell	SW NW Sec. 3-10-8, Seminole County	Absp.	25,000
Carter Oil Co., Burbank	E half NW Sec. 9-26-6, Osage County	Absp.	23,000
Carter Oil Co., Hewitt	SW NW Sec. 23-4-2, Carter County	Absp.	10,000
Chase Gasoline Co., Muskogee	Muskogee	Comp.	1,000
Chase Gasoline Co., Muskogee	Muskogee	Comp.	2,000
Chesney, Charles, Gasoline Co., Box 857, Okmulgee	½ mi. north Okmulgee	Absp.	*500
Chestnut & Smith Corp., Tulsa	Glenpool	Comp.	4,000
Chestnut & Smith Corp., Tulsa	Glenpool	A-C	16,000
Chestnut & Smith Corp., Tulsa	Morris	Comp.	3,500
Comar Gasoline Co., Marland	NE Sec. 10-24n-1w	Absp.	*

(Continued on Page 120)

NATURAL GASOLINE PLANTS BY STATES

OKLAHOMA (Continued)

Company and plant address—	Field location—	Type of plant	Daily cap'y gallons
Comar Gasoline Co., Marland	NE Sec. 2-24n-1w	Absp.	25,000
Comar Gasoline Co., Marland	SW Sec. 28-25n-1w	Absp.	8,000
Comar Oil Co., Braman	NW Sec. 5-28n-1w	A-C	4,000
Comar Oil Co., Braman	SW Sec. 21-29n-1w	Absp.	12,000
Cushing Refining & Gasoline Co., Cushing	Ripley, Sec. 32-18n-4e	Absp.	10,000
Cushing Refining & Gasoline Co., Blackwell	Blackwell, Sec. 15-27n-1w	A sp.	12,000
Cushing Refining & Gasoline Co., Hazel	St. Louis Pool, Sec. 30-7n-5e	Absp.	35,000
Cushing Refining & Gasoline Co., Hazel	South Little River, Sec. 15-7n-6e	Absp.	20,000
Denver Producing & Refining Co., Bin I, Okmulgee	Sec. 32-13-11e	Absp.	2,000
De Soto Gasoline Co., Muskogee	section 5-14-18	Comp.	150
Devonian Oil Co., Box 1441, Kellyville	Sec. 22-17n-10e, Creek County	Absp.	15,000
Devonian Oil Co., Box 1441, Stroud	Sec. 34-15n-15e, Lincoln County	Absp.	5,000
Devonian Oil Co., Osage	Sec. 22-20n-12e, Osage County	Absp.	3,000
Devonian Oil Co., Chickasha	Chickasha	Absp.	3,000
Dewey Portland Cement Co., Dewey	Dewey	Absp.	1,500
Eagle-Picher Lead Co., Henryetta	Sec. 6-11-13	Absp.	2,500
Empire Oil & Refining Co., Seminole	Sec. 25-9-6e, Seminole County	Absp.	25,000
Empire Oil & Refining Co., Seminole	Sec. 34-9-6e, Seminole County	Absp.	20,000
Empire Oil & Refining Co., Seminole	Sec. 14-9-6e, Seminole County	Absp.	25,000
Empire Oil & Refining Co., Burbank	Sec. 35-25-10e, Osage County	Absp.	30,000
Empire Oil & Refining Co., Okfuskee	Sec. 6-11-11e, Okfuskee County	Absp.	6,000
Foster, Dean E., Box 31, Deer Creek	NE Sec. 27-27n-3w	Absp.	*4,000
Foster Petroleum Corp., Bartlesville	N half Sec. 30-25n-11e, Osage County	Absp.	2,500
Foster Petroleum Corp., Bartlesville	N half SE Sec. 24-11n-3w, Oklahoma County	Absp.	10,000
Foster & Norwood Oil Co., Bartlesville	Sec. 29-25-11, Osage County	Absp.	3,000
Gates Oil Co., Ardmore	Sec. 15-4s-3w	Comp.	*2,500
Gilmore, Forrest E., Co.	Sec. 17-5n-8e, Pontotoc County	Comp.	8,500
Gilmore, Forrest E., Co., Kellyville	SW SE Sec. 1-17-10	C-A	15,000
Gilmore, Forrest E., Co., Bowlegs	NE NW Sec. 23-8-6	Comp.	12,500
Gilmore, Forrest E., Co., Little River	E SE Sec. 35-8-6	Comp.	25,000
Gilmore, Forrest E., Co.	Sec. 30-11-11, Okfuskee County	Comp.	8,000
Gilmore, Forrest E., Co.	Sec. 11-7n-6e, Seminole County	C-A	13,000
Glomar Gasoline Co., Jennings	Jennings	Absp.	2,500
Glomar Gasoline Co., Oakhurst	Oakhurst	Absp.	1,800
Grimes Gasoline Co., Tulsa	Sec. 35-11-9	Absp.	6,000
Grimes Gasoline Co., Tulsa	Sec. 2-10-9	Absp.	2,500
Grimes Gasoline Co., Tulsa	Sec. 22-10-11	Absp.	3,000
Grimes Gasoline Co., Tulsa	Sec. 6-9-10	Absp.	1,500
Grimes, Otha H., and Philo W., Tulsa	Sec. 11-10-11	Comp.	1,500
Grimes & Neal, Tulsa	Sec. 17-17-7	Absp.	2,500
Grimes & Gillespie, Tulsa	Sperry	Absp.	1,000
Gypsy Oil Co., Box 2044, Tulsa	N half SW SW Sec. 16-17-12	Comp.	22,218
Gypsy Oil Co., Box 2044, Tulsa	E half NE Sec. 5-17-7	Comp.	4,997
Gypsy Oil Co., Box 2044, Tulsa	NE SW Sec. 10-16-7	Comp.	3,857
Gypsy Oil Co., Box 2044, Tulsa	SE Sec. 1-21-7	Comp.	3,821
Gypsy Oil Co., Box 2044, Tulsa	NW Sec. 2-24-1w	Absp.	6,276
Gypsy Oil Co., Box 2044, Tulsa	NW Sec. 24-27-5e	Absp.	16,923
Gypsy Oil Co., Box 2044, Tulsa	SE cor. NE Sec. 3-14n-8e	Absp.	3,511
Gypsy Oil Co., Box 2044, Tulsa	NW Sec. 11-14n-5e	Absp.	3,877
Gypsy Oil Co., Box 2044, Tulsa	SE SW Sec. 14-7n-6e	Absp.	51,683
Gypsy Oil Co., Box 2044, Tulsa	SE NW Sec. 7-8-6	Absp.	24,972
Hales & Cassidy, Cushing	Cushing	Absp.	2,000
Harland Oil Co., Box 57, Wolco	NE Sec. 25-24-11	Absp.	1,200
Harland Oil Co., Box 57, Wolco	SW Sec. 20-25-11	Absp.	1,500
Henderson Co., The, Tulsa	Delaware	Comp.	9,000
Highway Oil Refining Corp., Tulsa	Sec. 20-19n-12e	Comp.	500
Highway Oil Refining Corp., Tulsa	Sec. 21-16n-15e	Comp.	500
Independent Oil & Gas Co., Seminole	S half NE Sec. 26-9-6	Absp.	10,000
Independent Oil & Gas Co., Seminole	SW SW Sec. 23-7-6	Comp.	30,000
Independent Oil & Gas Co., Seminole	NE NW Sec. 7-8-6	Comp.	10,000
Kinnear & Church	Bixby	Absp.	125
Lane, Elmer		Comp.	800
Lone Star Gas Co., Hollis	Harmon County	Comp.	12,000
Louvain Oil Co.		Absp.	4,000
McCaskey, J. G.		Comp.	300
McCaskey, J. G.		Comp.	3,400
McCormick, J. A.		Absp.	8,800
McMan Oil & Gas Co., Tonkawa	Sec. 11-24-1	Absp.	15,000
Magnolia Petroleum Co., Cushing	Sec. 9-17n-7e	Comp.	3,500
Magnolia Petroleum Co., Cushing	Secs. 8 and 9-18n-7e	Comp.	†
Magnolia Petroleum Co., Cushing	Sec. 7-18n-7e	Comp.	4,300
Magnolia Petroleum Co., Cushing	Secs. 3 and 4-16n-7e	A-C	3,100
Magnolia Petroleum Co., Cushing	Sec. 29-18n-5e	Comp.	800
Magnolia Petroleum Co., Davenport	Sec. 34-15n-5e	A-C	4,500
Magnolia Petroleum Co., Duncan	Sec. 19-1Sn-8e	A-C	795
Magnolia Petroleum Co., Earlsboro	Sec. 26-9n-6e	A-C	8,000
Magnolia Petroleum Co., Earlsboro	Robins, J. M.	Comp.	7,100
Magnolia Petroleum Co., Fox	Sec. 33-1s-3w	A-C	1,500
Magnolia Petroleum Co., Graham	Sec. 23-2s-3w	Comp.	3,800
Magnolia Petroleum Co., Healdton	Sec. 15-14s-3w	Comp.	1,000
Magnolia Petroleum Co., Wewoka	Sec. 32-8n-8e	Comp.	2,600
Magnolia Petroleum Co., Yale	Sec. 6-19n-6e	Comp.	2,100
Magnolia Petroleum Co., Yale	Sec. 17-20n-6e	A-C	1,900
Marland Production Co., Ponca City	Sec. 33-25n-2e	Absp.	20,000
Marland Production Co., Tonkawa	SW Sec. 15-25n-2w	Absp.	7,000
Marland Production Co., Blackwell	SW Sec. 1-26n-2w	Absp.	6,000
Masoneal Gasoline Co., Box 591, Tulsa	Sec. 23-21n-8e	Comp.	500
Mid-co Oil Corp., Box 2085, Tulsa	Sec. 27-27-13e	Comp.	10,000
Mid-co Oil Corp., Box 2085, Tulsa	Sec. 9-18-7e	Comp.	10,000
Mid-co Oil Corp., Box 2085, Tulsa	Sec. 5-17-7e	Comp.	3,000
Mid-Continent Petroleum Corp., Bethel	Sec. 17-9-8	Absp.	3,000
Mid-Continent Petroleum Corp., Covington	Sec. 13-22-4n	Absp.	2,000
Mid-Continent Petroleum Corp., Cromwell	Sec. 15-10-8	Absp.	23,000
Mid-Continent Petroleum Corp., Leonard	Sec. 28-17-14	Comp.	500
Mid-Continent Petroleum Corp., Morris	Sec. 12-13-13	Absp.	2,000
Mid-Continent Petroleum Corp., Okmulgee	Sec. 19-13-13	Comp.	800
Mid-Continent Petroleum Corp., Shamrock	Sec. 22-17-7	Absp.	12,000
Mid-Continent Petroleum Corp., Stonebluff	Sec. 5-16-15	Comp.	2,000
Mid-Continent Petroleum Corp., Tulsa	Sec. 28-20-12	Absp.	1,000
Mid-Continent Petroleum Corp., Stroud	Sec. 8-15-8	Absp.	2,000
Mid-Continent Oil & Gas Co., Shidler	Osage County	A-C	8,000
Moon Gasoline Co., Box 267, Bixby	Sec. 4-16-13	Comp.	1,600
Moon Gasoline Co., Box 40, R. 4, Muskogee	Sec. 32-15-18	Comp.	900
M. T. C. Oil & Gas Co., 818 McBirney Bldg., Tulsa	Sec. 26-18-3, Payne County	Absp.	4,500
National Oil & Development Co., 604 Atlas Life Bldg., Tulsa	1 mi. east of Bartlesville	Comp.	2,000
National Products Co., 1510 Commonwealth Bldg., Pittsburgh, Pa.	Sec. 19-21-8, Pawnee County	Absp.	2,200
National Products Co., 1510 Commonwealth Bldg., Pittsburgh, Pa.	Sec. 30-21-8, Pawnee County	Absp.	250

OKLAHOMA (Continued)

Company and plant address—	Field location—	Type of plant	Daily cap'y gallons
National Products Co., 1510 Commonwealth Bldg., Pittsburgh, Pa.	Sec. 1-20-7, Pawnee County	Absp.	1,700
National Products Co., 1510 Commonwealth Bldg., Pittsburgh, Pa.	Sec. 25-20-7, Pawnee County	Absp.	900
National Products Co., 1510 Commonwealth Bldg., Pittsburgh, Pa.	Sec. 8-18-7, Creek County	Absp.	2,200
National Products Co., 1510 Commonwealth Bldg., Pittsburgh, Pa.	Sec. 3-15-10, Creek County	Absp.	2,200
Neal, H. B., & Son., Box 263, Copan	Sec. 34-28-13, Washington County	Absp.	750
Noble Oil & Gas Co., Quay	Quay	Absp.	5,000
Oil State Gasoline Co., Jenks	Sec. 17-18-13	Comp.	4,000
Oil State Gasoline Co., Beggs	Sec. 7-14-12	Comp.	*1,500
Oil State Gasoline Co., Yale	Sec. 13-19-5	C-A	4,000
Oklahoma Natural Gas Corp., Box 2047, Tulsa	Sec. 29-13-13, Okmulgee County	Absp.	*5,000
Orfic Gasoline Co., Tulsa	Sec. 18-21-8	Comp.	2,000
Owen Gasoline Co., Barnsdall	Sec. 19-24-11	A sp.	3,000
Owen Gasoline Co., Owen	Sec. 29-29-13	Absp.	10,000
Paraffin Oil Co., Wann	Wann	Comp.	100
Peppers Gasoline Co., Box 858, Enid	SW Sec. 24-22-4w	Absp.	3,000
Phillips Petroleum Co., Beggs	NW NE Sec. 11-15-12, Okmulgee County	Absp.	18,000
Phillips Petroleum Co., Burbank	W half SW Sec. 32-27-6, Osage County	Absp.	42,000
Phillips Petroleum Co., Cromwell	NW SW Sec. 33-11-8, Seminole County	Absp.	37,500
Phillips Petroleum Co., De Noya	NE NE Sec. 26-27-5, Osage County	Absp.	45,000
Phillips Petroleum Co.	SE NW Sec. 24-11-11, Okfuskee County	Absp.	17,000
Phillips Petroleum Co., Kay	E half NE Sec. 16-27-5, Kay County	Absp.	42,000
Phillips Petroleum Co., Norfolk	W half NW NW Sec. 1-18-5, Payne County	Absp.	3,000
Phillips Petroleum Co., Osage	SW NW Sec. 12-25-11, Osage County	Absp.	5,000
Phillips Petroleum Co., Pershing	SE SE Sec. 16-24-10, Osage County	Absp.	14,000
Phillips Petroleum Co., Stroud	5 a. NW Sec. 12-14-6, Lincoln County	Absp.	10,000
Phillips Petroleum Co., Wewoka	SW NW Sec. 33-8-8, Seminole County	Absp.	40,000
Phillips Petroleum Co., Wetumka	N half NW Sec. 3-9-9, Hughes County	Absp.	50,000
Powers, M. F.	Maud	Absp.	20,000
Powers, M. F., Depew	W half NE NE Sec. 8-15-8	Absp.	3,500
Powers & Quinlan, Chestnut & Smith Bldg., Tulsa	Loden	Comp.	700
Powers & Quinlan, Chestnut & Smith Bldg., Tulsa	Preston	Comp.	800
Pure Oil Co., Drumright	Sec. 32-18n-7e, Creek County	Comp.	5,000
Pure Oil Co., Oilton	Sec. 32-19n-7e, Creek County	Comp.	3,500
Pure Oil Co., Healdton	Sec. 11-4s-3w, Carter County	Comp.	1,000
Pure Oil Co., Hominy	Sec. 1-22-8e, Osage County	Comp.	1,500
Pure Oil Co., Okmulgee	Section 7-13n-13e, Okmulgee County	Comp.	800
Pure Oil Co., Seminole	Sec. 26-9n-6e, Seminole County	Absp.	20,000
Pure Oil Co., Seminole	Sec. 14-8n-6e, Seminole County	Comp.	12,000
Pure Oil Co., Seminole	Sec. 11-7-6, Seminole County	Comp.	3,200
Pure Oil Co., Seminole	Sec. 23-7-6, Seminole County	Comp.	14,000
Reserve Petroleum Co., Box 428, Shamrock	NW Sec. 3-16n-7e, Creek County	Absp.	10,000
Reserve Petroleum Co., Box 338, Barnsdall	SW Sec. 31-24n-11e, Osage County	Absp.	5,000
Romarti Gasoline Co., De Noya	SW Sec. 31-27n-6e	Absp.	10,000
Rotary Gasoline Co., Sperry	Sec. 10-21n-12e	Comp.	1,000
Sand Springs Home (Gasoline Dept.), Sand Springs	Sec. 4-19-7, Creek County	Comp.	3,000
Shaffer Oil & Refining Co., Mehan	Sec. 21-18n-3e	A sp.	8,000
Shaffer Oil & Refining Co., Chapman	Sec. 4-16n-7e	Absp.	5,000
Shaffer Oil & Refining Co., Morrison	Sec. 16-18n-8e	Comp.	4,000
Shaffer Oil & Refining Co., Kellyville	Sec. 17-17n-11e	Comp.	4,000
Shell Petroleum Corp., Covington	SW Sec. 18-22n-3w	C-A	4,000
Shell Petroleum Corp., Stroud	SE Sec. 1-14n-6e	Absp.	4,000
Shell Petroleum Corp., Yale	NW Sec. 18-19n-7e	Comp.	2,000
Shell Petroleum Corp., Drumright	NE Sec. 8-17n-7e	Absp.	4,000
Shell Petroleum Corp., Seminole	SE Sec. 16-8n-6e	A sp.	10,000
Shell Petroleum Corp., Marshall	SE Sec. 19-9n-4w	Absp.	25,000
Shell Petroleum Corp., Mannford	NE Sec. 18-19n-9e	Absp.	3,500
Shell Petroleum Corp., Maud	NW Sec. 29-7-5	Absp.	70,000
Shell Petroleum Corp., Maud	Sec. 7-8-5	Absp.	20,000
Signal Gasoline Co., Bristow	Bristow	Absp.	8,000
Silurian Oil Co., Avant	Sec. 17-23-12	Comp.	2,000
Sinclair Oil & Gas Co., Cleveland	Sec. 35-21-8e	Comp.	5,500
Sinclair Oil & Gas Co., Drumright	Sec. 28-18-7e	Comp.	7,000
Sinclair Oil & Gas Co., Shamrock	Sec. 28-17-7e	Comp.	15,000
Sinclair Oil & Gas Co., Covington	Sec. 19-22-3w	Absp.	40,000
Sinclair Oil & Gas Co., Hominy	Sec. 9-23-8e	Comp.	3,500
Sinclair Oil & Gas Co., Burbank	Sec. 9-23-8e	Absp.	36,000
Sinclair Oil & Gas Co., Cromwell	Sec. 4-10-8e	Comp.	12,000
Sinclair Oil & Gas Co., Seminole	Sec. 35-9-6	Absp.	100,000
Sinclair Oil & Gas Co., Lima	Lima	A-C	80,000
Sinclair Oil & Gas Co., St. Louis	St. Louis	Comp.	60,000
Sinclair Oil & Gas Co., Marshall	Marshall	Absp.	8,500
Sinclair Oil & Gas Co., Hollins	Hollins	Comp.	10,000
Sinclair Oil & Gas Co., Cosar	Cosar	Comp.	10,000
Skelly Oil Co., Box 168, Bristow	Sec. 15-14-8	Absp.	2,000
Skelly Oil Co., Box 168, Bristow	Sec. 4-15-9	Absp.	2,500
Skelly Oil Co., Box 168, Slick	Sec. 15-15-10	Absp.	7,500
Skelly Oil Co., Box 157, Lyman	Sec. 11-27-5	Absp.	17,500
Skelly Oil Co., Box 396, Davenport	Sec. 2-14-5	Absp.	3,000
Skelly Oil Co., Box 67, Maramec	Sec. 15-29-6	Absp.	3,500
Skelly Oil Co., Box 413, Wynona	Sec. 24-24-9	Absp.	6,000
Skelly Oil Co., Box 536, Earlsboro	Sec. 6-9-6	A-C	35,000
Southland Gasoline Co., Oilton	Sec. 33-19-7	Comp.	3,000
Southland Gasoline Co., Sapulpa	Sec. 19-18-12	Comp.	1,500
Southwest Production Co., Bristow	1 mi. north of Bristow	A sp.	1,500
Standard Oil Co. (Indiana), 910 South Michigan Ave., Chicago, Ill.	NE Sec. 4-18n-7e	Comp.	10,980
Standard Oil Co. (Indiana), 910 South Michigan Ave., Chicago, Ill.	NW Sec. 21-7n-7e	Comp.	13,039
Standard Oil Co. (Indiana), 910 South Michigan Ave., Chicago, Ill.	SW Sec. 34-18n-7e	Comp.	19,488
Standard Oil Co. (Indiana), 910 South Michigan Ave., Chicago, Ill.	NE Sec. 4-16n-7e	Comp.	6,984
Star Gasoline Co., Sapulpa	Eram	Comp.	800
Stebbins Oil & Gas Co., 946 Kennedy Bldg., Tulsa	Sec. 17-14-16	Comp.	2,500
Stebbins Oil & Gas Co., 946 Kennedy Bldg., Tulsa	Sec. 9-19-16	Absp.	5,000

(Continued on Page 123)

And THERE IS NO SECOND....

LEADERSHIP is the reward of merit. Class wins its way to the top in industrial competition as surely as in sport.

In the oil and gas fields, Foxboro with its new Orifice Meter has set the pace. Foxboro is out in front with time-tested features that are unduplicated, with a record of sales that is unequaled, with a list of users that includes the great majority of the leading oil and gas companies in the country.

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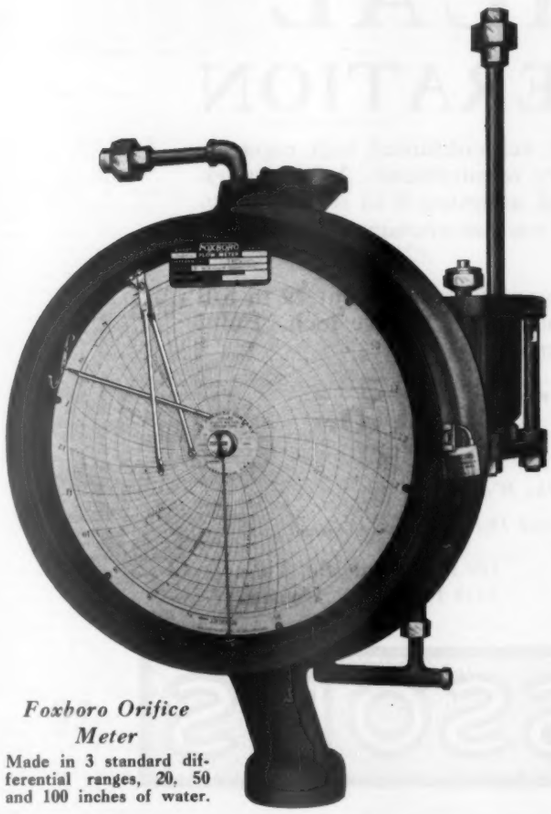

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Instruments for Controlling, Recording and Indicating Temperature, Flow, Humidity and Pressure

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FOR compressor service of all kinds this compact, self-contained, high capacity Diesel or gas engine driven compressor fills every requirement. A large variety of interchangeable cylinder sizes can be supplied, adapting it to widely varying conditions or to work of an experimental nature such as encountered with the flowing of wells by compressed gas.

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COMPRESSORS

NATURAL GASOLINE PLANTS BY STATES

OKLAHOMA (Continued)

Company and plant address—	Field location—	Type of plant	Daily cap'y gallons
Sterling Oil & Gas Co., Sperry	SE Sec. 1-12-11, Osage County	Absp.	700
Test Oil Co., Bartlesville	Sec. 30-27-14e	Comp.	400
Texas Company, The, Kiefer	Sec. 8-17-12e, Creek County	Comp.	12,555
Texas Company, The, Drumright	Sec. 16-17n-7e, Creek County	Comp.	7,500
Texas Company, The, Haskell	Sec. 22-15n-14e, Okmulgee County	Comp.	7,770
Texas Company, The, Oilton	Sec. 9-18n-7e, Creek County	Comp.	1,560
Texas Company, The, Preston	Sec. 11-14n-12e, Okmulgee County	Comp.	2,035
Texas Company, The, Davenport	Sec. 2-14n-6e, Lincoln County	Absp.	12,000
Texas Company, The, Beggs	Sec. 22-15n-11e, Okmulgee County	Absp.	6,500
Texas Company, The, McInnis	Sec. 30-25n-8e, Osage County	Absp.	4,000
Texas Company, The, Jenks	Sec. 2-18n-12e, Tulsa County	Comp.	700
Texas Company, The, Maud	Sec. 7-8n-5e, Pottawatomie County	Absp.	25,000
Tidal-Chelsea Refining Co., Chelsea	Sec. 4-24n-17e	Absp.	10,000
Tidal-Chelsea Refining Co., Chelsea	Sec. 7-25n-17e	Absp.	2,000
Tidal Refining Co., Drumright	Sec. 8-17n-7e	Absp.	15,000
Tidal Refining Co., Glenpool	Sec. 14-17n-13e	Absp.	15,000
Tidal Refining Co., Ochelata	Sec. 12-25n-12e	Comp.	3,000
Tiger Mountain Oil Co., 802 Mid-Continent Bldg., Tulsa	Sec. 36-14-11, Okmulgee County	Comp.	4,000
Transcontinental Oil Co., Nowata	Sec. 1-25n-16e	Comp.	*
Transcontinental Oil Co., Morris	Sec. 22-13-14	Absp.	7,500
Transcontinental Oil Co., Haskell	Sec. 28-15-14	Absp.	2,500
Transcontinental Oil Co., Nowata	Sec. 24-25-16	Absp.	2,000
Transcontinental Oil Co., Bristow	Sec. 27-16-9	Absp.	10,000
Transcontinental Oil Co., Haskell	Sec. 1-14-15	Comp.	1,000
U. S. Lead & Zinc Co.		Absp.	1,800
Union Gasoline Co., Commercial National Bank Bldg., Independence, Kans.	3 mi. south of Barnsdall	Absp.	*1,500
Valley Osage Oil Co.	Nowata County	Comp.	1,500
Victor Gasoline Co., Drumright	NE Sec. 12-21-16	Comp.	4,000
Victor Gasoline Co., Bristow	E NW Sec. 27-16-9	Absp.	6,000
Victor Gasoline Co., Bristow	W W SW Sec. 8-16-9	Comp.	1,200
Victor Gasoline Co., Davenport	NW NW Sec. 3-14-5	Absp.	1,500
Victor Gasoline Co., Covington	NW NE Sec. 24-22-4	Comp.	800
Victor Gasoline Co., Seminole	S NW Sec. 10-9-6	Absp.	5,000
Victor Gasoline Co., Lima	Lima	Absp.	20,000
Victor Gasoline Co., Earlsboro	Earlsboro	Absp.	10,000
Victor Gasoline Co.	Sec. 5-7-7	Comp.	5,000
Warner-Caldwell Oil Co., Nowata	Sec. 17-26n-16e	Comp.	500
Warner-Caldwell Oil Co., Nowata	Sec. 1-25n-16e	Absp.	500
Warner-Caldwell Oil Co., Nowata	Sec. 36-26n-14e	Comp.	250
Warner-Caldwell Oil Co., Nowata	Sec. 17-26n-17e	Comp.	250
Warner-Caldwell Oil Co., Nowata	Sec. 29-26n-17e	Absp.	1,000
Wentz, L. H. (Oil Division), Peckham	Sec. 21-28n-1e	Absp.	5,000
Wentz, L. H. (Oil Division), Tonkawa	Sec. 34-25n-1w	Comp.	10,000
Wilcox, H. F., Oil & Gas Co., Beggs	Sec. 30-15-11	Absp.	2,000
Wilcox, H. F., Oil & Gas Co., Bristow	Sec. 2-16-8	Absp.	2,000
Wilcox, H. F., Oil & Gas Co., Slick	Sec. 33-15-10	Comp.	2,000
Wiser Oil Co., Alluwe	Sec. 31-25n-17e	Comp.	2,000
Wolverine Petroleum Corp., Avant	NE Sec. 12-23n-11e	Comp.	2,500
Wolverine Petroleum Corp., Osage	E Sec. 24-24n-11e	Comp.	6,000
Wolverine Petroleum Corp., Hogshooter	SE Sec. 26-26n-13e	Comp.	700
Wolverine Petroleum Corp., Wayside	SW Sec. 1-27n-13e	Comp.	*
Wolverine Petroleum Corp., Buford	SE Sec. 13-26n-12e	Comp.	2,000
Wolverine Petroleum Corp., Niagara	NW Sec. 32-28n-13e	Comp.	500
Wolverine Ptroleum Corp., Dillard	SW Sec. 22-4s-2w	Absp.	9,000
Wright, J. H., Estate, Sapulpa	Sec. 24-17-10, Creek County	Absp.	4,500

†Vacuum station.

PENNSYLVANIA

Alum Rock Gas Co., Fern	Clarion County	Comp.	150
Associated Producers, Kinzua	Warren County	Comp.	125
Atlas Oil Co., Clarion	Farmington	Comp.	350
Barbary and Hardt	Wildwood	Comp.	5
Bartoe, Harry T., Petrolia	Petrolia	Comp.	25
Bayliss & Fasenmeyer	Titusville	Comp.	500
Berry, J. P.		Comp.	60
Berry, Pryor, Petrolia	Butler County	Comp.	20
Bizzard Gas Co., Emlenton	Emlenton	Comp.	100
Bradford Gasoline Co., Bradford	Bradford	Comp.	300
Brundred Gasoline Co., Oil City	Venango	Comp.	*1,000
Canonsburg Steel & Iron Works, Canonsburg	Washington County	Absp.	350
Carnahan, Charles E. and Lida M.	Tidioute	Comp.	500
Carnegie Natural Gas Co., Waynesburg	Greene County	Absp.	2,000
Carnegie Natural Gas Co., Lone Pine	Washington County	Absp.	900
Carpenter, M. A., Karns City	Fairview Twp.	Comp.	50
Clinger Oil & Gas Co., Fagundus	Triumph Twp. Warren County	Comp.	500
Clinger Oil & Gas Co., Hastings Bridge	Howe Twp. Forest County	Comp.	500
Cochran, John G. & Co., Sheffield	Lot 438 Sheffield	Absp.	700
Coffin, S. E. Estate		Absp.	183
Columbia Gas & Electric Corp., McKinley	Elk County	Absp.	1,500
Columbia Gas & Electric Corp., Majorsville	West Twp.	Absp.	7,080
Columbia Gas & Electric Co., Waynesburg	Franklin Twp.	Absp.	3,930
Columbia Gas & Electric Corp., Heard	Finley Twp. West County	Absp.	2,550
Conquer, S. J.		Comp.	50
Cook Oil Lease, Kelletville	Mayburg	Comp.	500
Daugherty, C. R., Y.M.C.A. Bldg., Butler	Herman Sta.	Comp.	36
Daugherty, M. G. and C. R., Petrolia	Petrolia	Comp.	50
Daugherty, C. R. & Co., Y.M.C.A. Bldg., Butler	Oakdale R. D. 2	Comp.	95
Dempseytown Gas Co., Oil City	Clarion County	Comp.	50
Dunlap, Harry G., Chicora	1 mile W of Chicora	Comp.	25
Edwards, E. A., Titusville	Titusville	Comp.	192
Elsworth, Hefron & Co.	Lucinda	Comp.	400
Ellenberger, W. J. & Sons		Comp.	300
Elliott Brothers, Chicora	Chicora	Comp.	500
Equitable Gas Co., Marianna	Washington County	Absp.	2,500
Equitable Gas Co., Rogerville	Greene County	Absp.	6,000
Faith Oil & Gas Co., Titusville	Forest County	Comp.	*500
Federal Oil & Gas Co., McDonald	McDonald	Comp.	100
Fetzes, Charles et al		Comp.	50
Fleming, J. E., Titusville	Eldred Twp., Warren County	Comp.	400
Follstadt & Jewell		Comp.	150
Forest Chemical Co.	Harnes	Absp.	300
Forest Oil & Gas Co., Clinton	Beaver County	Comp.	100
Gamble, James	Karnes City	Comp.	75
Gould, Nancy E. & Son., R.F.D. 6, Butler	Penn Twp., Butler County	Comp.	20
Grandin-Clinger-Bell & Jennings, Tidioute	Triumph Twp., Warren County	Comp.	120
Hadden, J. B., Sheffield	Henry's Mill	Comp.	400
Haskell & Bayliss, Pleasantville	Butler County	Comp.	100
Haskell & Dunham, Pleasantville	Warren County	Comp.	100
Haskell, Roth & Bayliss, Tidioute	Tidioute	Comp.	600
Hazelwood Oil Co., Petrolia	Southeast of Petrolia	Comp.	50
Hickey & Rieg, Clarendon	Henry's Mill, Warren County	Comp.	500
Hickey & Russell	Henry's Mill	Comp.	300

PENNSYLVANIA (Continued)

Company and plant address—	Field location—	Type of plant	Daily cap'y gallons
Hope Construction & Refining Co., Brave	Wayne Township, Greene County	Absp.	20,000
Hope Construction & Refining Co., Imperial	Finley Township, Lawrence County	Char.	5,600
Hope Construction & Refining Co., McKeesport	Versailes Township, Allegheny County	Char.	2,600
Hope Construction & Refining Co., Mayport	Limestone Township, Clarion County	Absp.	1,500
Hope Construction & Refining Co., Yatesboro	Cowanshannoc Township, Armstrong County	Absp.	900
Hunter, Livingston L., Trust, Tidioute	Forest County	Comp.	300
Jackson, F. W., Chicora	Chicora	Comp.	400
Jennings, E. H., Bros., Pittsburgh	Noblestown²	Comp.	1,700
Johnson, C. H. and H. G. Dunlap	Chicora	Comp.	60
Johnson-Myers Bros., Tidioute	Triumph Township	Comp.	300
Kapp & Brockelhurst, Tidioute	Tidioute	Comp.	225
McMeekin, Charles T., Karns City	1¼ mi. SW Karns City	Comp.	50
Mars Oil Co., Oil City	Clarion	Absp.	1,800
Mars Oil Co., Oil City	Venango County	C-A	4,000
Mars Oil Co., Oil City	Potter County	C-A	750
Mars Oil Co., Oil City	Lewis Run	C-A	6,500
Mars Oil Co., Oil City	Forest County	Absp.	1,500
Mars Oil Co., Oil City	Venango County	C-A	7,500
Martin, Orie L.	Butler County	Comp	8
Midland Oil Co., Petroleum Center	Petroleum Center	Comp.	200
Miller, Gould & Co., Butler	6 mi. from Butler	C-A	22
Miller & Marshall		Comp.	25
Montgomery, James, R.F.D. 1, McCoy Road	McCoy Road	Comp.	40
Myers & Hayes, Chicora	Butler County	Comp.	55
National Gasoline Co.	West Hickory	Comp.	200
National Gasoline Co.	Grand Valley	Comp.	225
North Penn Gas Co., Shinglehouse	McKean and Potter Counties	Absp.	400
Norton & Jackson, Tidioute	Forest County	Comp.	100
O'Hara, Sarah C., Karns City	2 mi. NW of Karns City	Comp.	40
Ostrander, Clarence S.		Comp.	50
Ostrander & Daugherty, Petrolia	Petrolia	Comp.	30
Parker, H. R., Chicora	Donegal Twp. (2)	Comp.	150
Penna Fuel Supply Co., Haust	Clarion County	Absp.	*
Pennsylvania Oil Co.	Sheffield	C-A	10,000
Pequignot, E. O., Tidioute	Forest City	Comp.	100
Pequignot, E. O., Tidioute	Harmony Township, Forest County	Comp.	200
Pequignot, E. O., Tidioute	Webber farm, Forest County	Comp.	100
Pioneer Oil Co., Pioneer	Pioneer (2)	Comp.	600
Porter Brothers, Catfish	Catfish	Comp.	100
President Oil Co., Emlenton	Butler County	Comp.	50
President Oil Co., Emlenton	Butler County	Comp.	100
President Oil Co., Emlenton	Venango	Comp.	500
Price, Harry D., Renfrew	Butler Township	Comp.	100
Ramage, S. Y., Tidioute	Tidioute	Absp.	20
Red Brush Oil Co., Tionesta	6 mi. north of Tionesta	Comp.	80
Reitz, M. W., Conoquenessing	Petersville	Comp.	20
Riddle Farm Oil Co., Karns City	One-half mi. south of Karns City	Comp.	50
Ritzert Brothers, Chicora	Chicora	Comp.	70
Say, George K., Karns City	Karns City	Comp.	100
Sharpe, Rowe & von Tacky Bros., Titusville	Oil Creek Township, Crawford County	Comp.	80
Sherwin, William E., Karns City	1 mi. S of Karns City	Comp.	15
Sloan & Zook Co., Kane	McKean County	Absp.	1,200
Southern Oil Co., Clarion	Clarion County	Comp.	150
Southern Oil Co., Elmo	Clarion County	Comp.	150
Southern Oil Co., Miola	Clarion County	Comp.	150
Southern Oil Co., Pleasantville	Venango County	Comp.	150
Southern Oil Co., Volant	Lawrence County	Comp.	50
Southern Oil Co., Butler	Butler County	Comp.	50
South Penn Oil Co., Pittsburgh	Wildwood	Comp.	
South Penn Oil Co., Pittsburgh	Noblestown	Comp.	
South Penn Oil Co., Pittsburgh	Henry's Mill	Comp.	
South Penn Oil Co., Pittsburgh	McDonald	Comp.	
South Penn Oil Co., Pittsburgh	Chicora	Comp.	
South Penn Oil Co., Pittsburgh	Braden	Comp.	
South Penn Oil Co., Pittsburgh	South Heights	Comp.	
South Penn Oil Co., Pittsburgh	Evans City	Comp.	
South Penn Oil Co., Pittsburgh	Evans City	Comp.	
South Penn Oil Co., Pittsburgh	Evans City	Comp.	
South Penn Oil Co., Pittsburgh	Parker	Comp.	
South Penn Oil Co., Pittsburgh	Parkey	Comp.	
South Penn Oil Co., Pittsburgh	President	Comp.	
South Penn Oil Co., Pittsburgh	New Freeport	Comp.	
South Penn Oil Co., Pittsburgh	Bradford	Comp.	
South Penn Oil Co., Pittsburgh	Guffey	Comp.	
South Penn Oil Co., Pittsburgh	Wright Station	Comp.	
South Penn Oil Co., Pittsburgh	Clarendon	Comp.	
South Penn Oil Co., Pittsburgh	Tiona	Comp.	
South Penn Oil Co., Pittsburgh	Chaffee	Comp.	†16,000
Stephens, W. J., Grand Valley	Grand Valley	Comp.	100
Success Oil Co., Pioneer	Pioneer	Comp.	500
Surety Oil Co., Titusville	2½ mi. from Titusville	Comp.	1,000
Tarbell & Co., Grand Valley	2 mi. from Grand Valley	Comp.	80
Thomas, R. L., Tidioute	Triumph Township, Warren County	Vac.	150
Tionesta Gas Co., Tionesta	Forest City	Absp.	100
Tompsett Bros., Tidioute	Triumph Township	Vac.	275
Veach, George, Tidioute	5 mi. S of Tidioute	Absp.	500
Veach Oil Co., Oil City	Trunkeyville	Comp.	30
Vrooman, A. G.		Comp.	80
Warner, C. W.		Comp.	40
Warner-Caldwell Oil Co., Titusville	Crawford County	Comp.	1,000
Wheeler, D. H., Box 86, Petrolia	Petrolia	Comp.	50
Will, Jacob, McDonald	Chartiers Township	Comp.	30

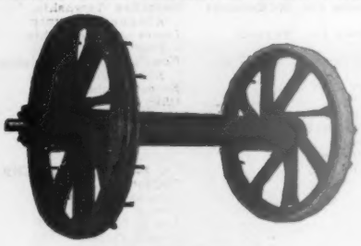
†Combined capacity of 20 plants.

TEXAS

Adams Gasoline Co., Tulsa, Okla.	Eastland County	Absp.	10,000
Altitude Petroleum Corp., 814 Kennedy Bldg., Tulsa, Okla.	Pueblo	Absp.	4,000
Amerada Petroleum Corp., Coleman	Fry Pool, Brown County	Absp.	18,000
American Natural Gasoline Corp., 911 Chapman Bldg., Los Angeles, Calif.	Waskom	Absp.	10,000
American Natural Gasoline Corp., 911 Chapman Bldg., Los Angeles, Calif.	Breckenridge, Stokes and Ball leases	Absp.	7,500
Arab Gasoline Corp., Eastland	Sec. 17, Blk. 4, H.&T.C.R.R. Sur., Eastland County	Absp.	25,000
Arkansas Fuel Oil Co., Eastland	Connellee farm	Absp.	5,000
Atlantic Oil Producing Co., Pampa	NW Sec. 83, Blk. 3, I.&G. N.R.R., Gray County	Absp.	10,000
Bell Oil & Gas Co. and Pacific American Oil Co., Borger	Borger	Absp.	25,000
Bell Oil & Gas Co., Borger	Borger	Absp.	2,000
Bell Oil & Gas Co., Burkburnett	Burkburnett	Comp.	2,500
Big Lake Oil Co., Texon	Texon	Absp.	20,000
Boudinot Gasoline Co., Ranger	Ranger	Absp.	5,000
Breckenridge Gasoline Co., Breckenridge	Breckenridge	Absp.	12,000
Brooks & Hanlon, Inc., Breckenridge	Breckenridge	C-A	31,000
California Co., The, Colorado	Sec. 15, Blk. 28, Mitchell County	Absp.	2,700
Cannon Gasoline Co., Amarillo	2 mi. north of Amarillo	Absp.	6,000
Chestnut & Smith Corp., Ranger	Ranger (4 plants)	C-A	82,000

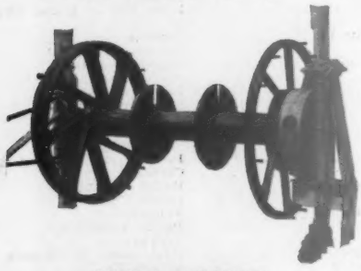
(Continued on Page 126)

"IDECO" Steel Wheels Built for Hard Service



BULL WHEELS

"Ideco" Bull Wheels have eight channel spokes, a deep "V" groove tug rim with rolled edges, wood or steel faced brake wheels, "Ideco" patented removable gudgeons and 13'6"-16" or 18" O. D. shafts with ⅜" or ½" walls. Turning pins, rope dogs and helpers are regular equipment.

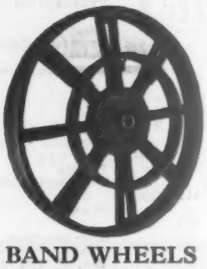


BULL HOISTS

The Bull Hoist utilizes the standard type of tug wheel, shaft and removable gudgeons, the brake has been changed to a casting 42" in diameter equipped with Johns-Manville Brake Lining. The elimination of the antiquated type of brake has brought greater flexibility of operation, more perfect control, speeded up drilling, gives more floor room and eliminates all of the disadvantages of the old type of brake.

CALF WHEELS

Made with wood or steel face brake wheels "Ideco" Calf Wheels have earned a reputation for great strength and long service. A 90" split sprocket, "Ideco" patented removable gudgeons and 16" or 18" O. D. Shafts are standard.

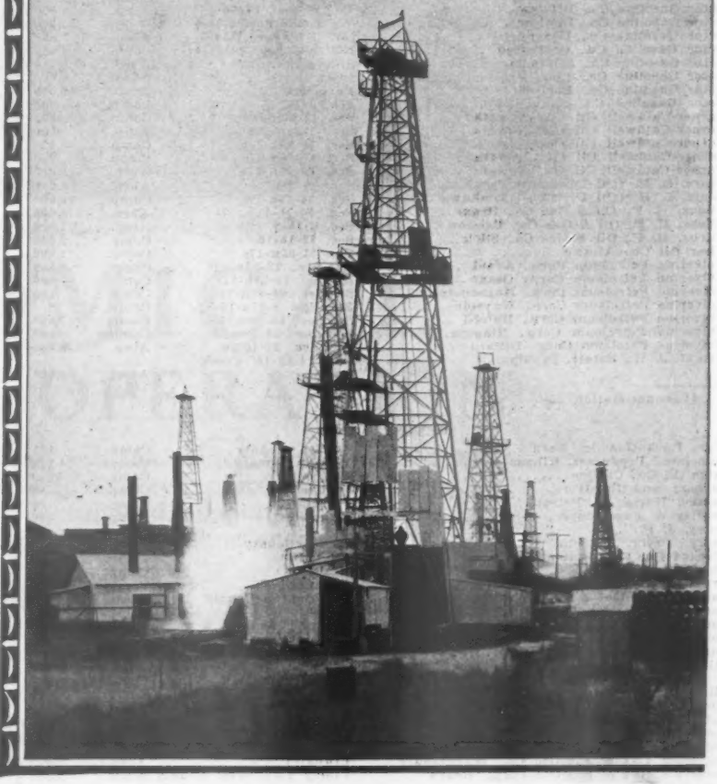


BAND WHEELS

Having superior strength and balance with a minimum of vibration "Ideco" Band Wheels are furnished in a variety of sizes. Their principal features are: wood or steel face rims, double channel arms, double riveted construction, a one-piece steel hub, and the "Ideco" deep "V" groove double steel tug rim with rolled edges.

The above wheels furnished galvanized or painted.

Made to A.P.I. Specifications.

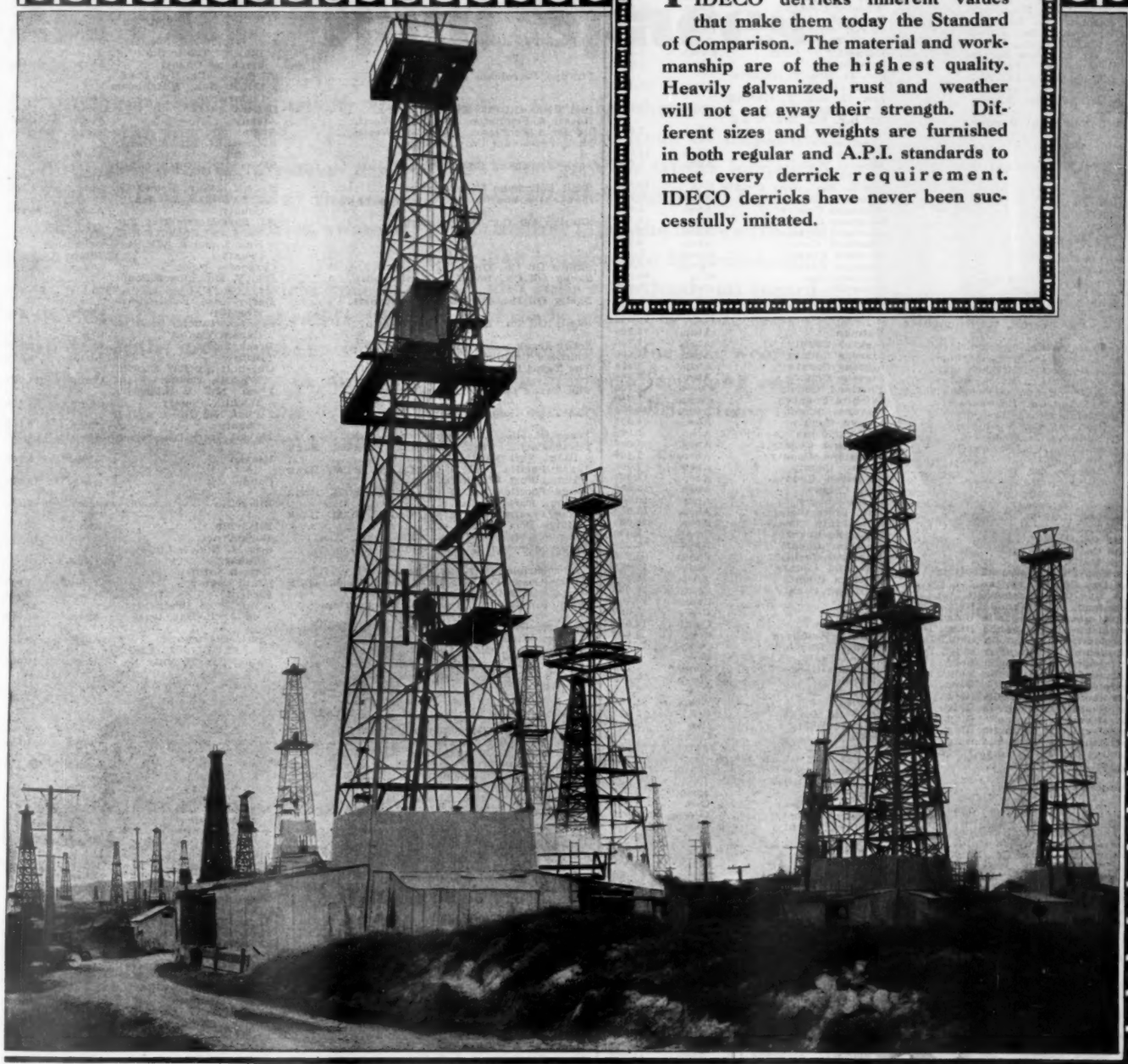


"IDECO" Wheels are designed, built and oil country service. Their construction is based wants. "Ideco" Wheels are built of the finest years of service with little or no attention.

The International

Columbus, Ohio

Plants: Columbus, Delaware, Ohio; Torrance, California; *Sales Offices:* Columbus, Ohio; New Tonkawa, Drumright, Okemah, Wewoka, Maud, Sasakwa, Allen, Earlsboro, Oklahoma City, Mexia, Luling, Texas; Shreveport, Lake Charles, Louisiana; El Dorado, Smackover, Arkansas.



INTERNATIONAL incorporates in IDECO derricks inherent values that make them today the Standard of Comparison. The material and workmanship are of the highest quality. Heavily galvanized, rust and weather will not eat away their strength. Different sizes and weights are furnished in both regular and A.P.I. standards to meet every derrick requirement. IDECO derricks have never been successfully imitated.

assembled, to the last rivet, in our own shops. They meet the most rigid demands of severe upon sound engineering principles—coupled with our field experience of what the oil producer materials and possess tremendous strength. They are free from vibration, run true and give Send for Wheel Catalog!

Derrick & Equipment Company

Los Angeles, Calif.

York City, N. Y.; Detroit, Michigan; Dallas, Texas; Wichita, Kansas; Los Angeles, California; Maracaibo, Venezuela; *Warehouses and Yards:* Columbus, Ohio; Tulsa, Seminole, Oklahoma; El Dorado, Wichita Heights, Kansas; Bakersfield, Taft, Torrance, California; Houston, Hebbronville, Big Spring, Merkel, Odessa, Pyote, Pampa, Borger, McLean, *Export Representation*—74 Trinity Place, New York City, Columbus, Ohio; Houston, Texas; Los Angeles, California.

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NATURAL GASOLINE PLANTS BY STATES

TEXAS (Continued)

Company and plant address—	Field location—	Type of plant	Daily cap'y gallons
Chestnut & Smith Corp., Eastland	Eastland	Absp.	6,500
Chestnut & Smith Corp., Olden	Olden	Absp.	8,500
Cockrell-McIlroy Oil Co., Amarillo	Borger Field, Hutchinson County	Absp.	3,000
Coltex Corp., 45 East Forty-Second St., New York, N. Y.	Gray County	Absp.	45,000
Columbian Gasoline Corp., Shamrock	Wheeler County	Absp.	12,000
Consolidated Gasoline Co., Eastland	Eastland	Absp.	15,000
Continental Oil Co. of Texas, Burkburnett	Powell farm	Comp.	3,500
Continental Oil Co. of Texas, Electra	W. T. Waggoner farm	Comp.	2,500
Continental Oil Co. of Texas, Electra	Burnett "B" farm	Comp.	2,500
Desdemona Gasoline Co., Desdemona	Desdemona	Absp.	5,000
Dixon Creek Oil Co., Amarillo	Sec. 11, Blk. Y, Hutchinson County	Absp.	15,000
Empire Oil & Refining Co., Borger	Sec. 19, Blk. Y, Hutchinson County	Char.	4,000
Empire Oil & Refining Co., Pampa	NE Sec. 152, Blk. 3, I.& G.N.R.R., Gray County	Absp.	2,000
Federal Gasoline Co., Amarillo	2 mi. south of Borger, Hutchinson County	Absp.	12,000
Gilmore, Forrest E., Co., Mineral Wells	Mineral Wells	Absp.	2,000
Gilmore, Forrest E., Co.	Sec. 163, Blk. 3, I.&G.N. R.R. Sur., Gray County	C-A	12,000
Gulf Production Co.	Stephens County	Absp.	2,000
Gulf Production Co.	Stephens County	Absp.	1,800
Gulf Production Co.	Stephens County	Absp.	4,300
Gulf Production Co.	Eastland County	Absp.	1,800
Gulf Production Co.	Eastland County	Absp.	4,200
Gulf Production Co.	Wichita County	Comp.	1,200
Gulf Production Co.	Wichita County	Comp.	1,300
Hanlon Gasoline Co., Breckenridge	Breckenridge	C-A	30,000
Hanlon Gasoline Co., Eliasville	Eliasville	C-A	5,000
Hirt-MacDermott & Co., 407 Capps Bldg., Fort Worth	Desdemona	Absp.	5,000
Hirt-MacDermott Gasoline Co., 407 Capps Bldg., Fort Worth	Gorman	Absp.	*5,000
Humble Oil & Refining Co., Breckenridge	Stevens County	Absp.	2,300
Humble Oil & Refining Co., Breckenridge	Stevens County	Absp.	3,600
Humble Oil & Refining Co., Breckenridge	Stevens County	Absp.	6,400
Humble Oil & Refining Co., Breckenridge	Stevens County	Absp.	2,000
Humble Oil & Refining Co., Desdemona	Eastland County	Comp.	2,300
Humble Oil & Refining Co., Burkburnett	Wichita County	Comp.	1,300
Humble Oil & Refining Co., Corsicana	Navarro County	Absp.	14,700
Humble Oil & Refining Co., Rising Star	Brown County	Absp.	8,900
Humble Oil & Refining Co., Woodson	Throckmorton County	Absp.	1,800
Humble Oil & Refining Co., Vernon	Wilbarger County	Absp.	3,000
Humble Oil & Refining Co., Wortham	Freestone County	Absp.	1,400
Humble Oil & Refining Co., Bangs	Brown County	Absp.	2,000
Humble Oil & Refining Co., Neches	Anderson County	Absp.	†1,000
Lone Star Gas Co., Petrolia	Clay County	Absp.	15,000
Lone Star Gas Co., Gainesville	Cooke County	Absp.	15,000
Lone Star Gas Co., Brazos	Palo Pinto County	Absp.	15,000
Lone Star Gas Co., Gordon	Palo Pinto County	Absp.	25,000
Lone Star Gas Co., Desdemona	Eastland County	Comp.	2,000
Lone Star Gas Co., Tiffin	Eastland County	Absp.	2,000
Lone Star Gas Co., Cheaney	Eastland County	Comp.	8,000
McMan Oil & Gas Co., Desdemona	Eastland County	Absp.	10,000
McMan Oil & Gas Co., Desdemona	Wichita County	Absp.	20,000
McMan Oil & Gas Co., Burkburnett	Eastland County	Comp.	20,000
Magnolia Petroleum Co., Magnolia Bldg., Dallas	Hardin	Comp.	4,400
Magnolia Petroleum Co., Magnolia Bldg., Dallas	Morris	C-A	380
Magnolia Petroleum Co., Magnolia Bldg., Dallas	Caruth (2)	Comp.	12,000
Magnolia Petroleum Co., Magnolia Bldg., Dallas	Sumner-Hamilton	Comp.	4,000
Magnolia Petroleum Co., Magnolia Bldg., Dallas	Burnett, Ranch O.	Comp.	120
Magnolia Petroleum Co., Magnolia Bldg., Dallas	Owens-Chalk	C-A	800
Magnolia Petroleum Co., Magnolia Bldg., Dallas	Magnolia-Garcia	Comp.	130
Magnolia Petroleum Co., Magnolia Bldg., Dallas	Harris	Comp.	7,400
Magnolia Petroleum Co., Magnolia Bldg., Dallas	Mertens "B"	C-A	2,500
Magnolia Petroleum Co., Magnolia Bldg., Dallas	Worley	Absp.	1,400
Magnolia Petroleum Co., Magnolia Bldg., Dallas	M. P. Co. fee 24	C-A	2,235
Magnolia Petroleum Co., Magnolia Bldg., Dallas	Brown County	C-A	5,300
Magnolia Petroleum Co., Magnolia Bldg., Dallas	Stiles	Comp.	60
Majestic Gasoline Co., Fort Worth	Desdemona	Absp.	*3,000
Marland Production Co., Borger	NE. Sec. 20, Blk Y, Hutchinson County	Absp.	*
Marland Production Co., Borger	NE Sec. 116, Block 5, Carson County	Absp.	5,000
Mid-Kansas Oil & Gas Co., Desdemona	Eastland County	C-A	4,000
Mid-Kansas Oil & Gas Co., Eliasville	Stephens County	C-A	20,000
Mid-Kansas Oil & Gas Co., Eliasville	Stephens County	C-A	10,000
Noble Oil & Gas Co., Burkburnett	Burkburnett	Comp.	20,000
Ockland Gasoline Production Co., Bank of Commerce Bldg., Tulsa, Okla.	Desdemona	Absp.	3,000
Ockland Gasoline Production Co., Bank of Commerce Bldg., Tulsa, Okla.	Desdemona	Comp.	4,000
Omar Gasoline Co., Wichita Falls	NW of Burkburnett	Comp.	11,500
Orfic Gasoline Co., Desdemona	Reynolds Survey	Comp.	6,000
Phelps Gasoline Co., Shamrock	SW Sec. 41, Wheeler Co.	Absp.	12,000
Phillips Petroleum Co., Breckenridge	SE Sec. 8, T.&P.R.R. Sur., Blk. 5, Stephens County	Absp.	15,000
Phillips Petroleum Co., Borger	NE SE, Sec. 21, Block Y, A.&B. Sur., Hutchinson County	Absp.	40,000
Phillips Petroleum Co., Canadian	NW SE, Sec. 1, Blk. X02, Hutchinson County	Absp.	25,000
Phillips Petroleum Co., Carter	SW Sec. 2, Blk. 8, T.&N. O.R.R. Sur., Stephens County	Absp.	12,000
Phillips Petroleum Co., Eliasville	6.88 ac. N half. Sur. 1,174, T.E.&L., Stephens Co.	Absp.	12,000
Phillips Petroleum Co., Frankell	5 ac. SE SW Sec. 51, Blk 6, T.&P. Sur., Stephens County	Absp.	8,500
Phillips Petroleum Co., Gorman	SE cor., Thomas Mulryne Sur. A-377, Eastland Co.	Absp.	12,000
Phillips Petroleum Co., Helios	W cen. W. A. Eakin 132-a. tract, Eastland County	Absp.	12,000
Phillips Petroleum Co., Herron City	SE 20, P. J. Humphrey Sur., Young County	Absp.	9,000
Phillips Petroleum Co., Hohertz	Sec. 63, Blk. 4, T.&P.R.R. Sur., Stephens County	Char.	5,000
Phillips Petroleum Co., Ibex	NW Sec. 28, B.A.L. Sur., Shackelford County	Absp.	45,000
Phillips Petroleum Co., Johnson	Sec. 69, Blk. 46, H.&T.C. Sur., Hutchinson County	Absp.	50,000
Phillips Petroleum Co., McCamey	NE NE, Sec. 216, Blk. F, C.C.S.D.&R.G.N.G.R.R. Sur., Crane County	Absp.	75,000
Phillips Petroleum Co., Necessity	SW cor., B. F. Satterwhite 200-a. tract, Blk. 15, T. &P.R.R. Sur., Blk. 6, Stephens County	Absp.	2,500
Phillips Petroleum Co., Oil City	20-a. SE cor., R. D. Owens Sur. A-2,249, Young Co.	Absp.	7,500
Phillips Petroleum Co., Olney	17.61-a. T.E.&L. Sur., Blk. 2,403, Archer County	Comp.	10,000
Phillips Petroleum Co., Panhandle	S. Sec. 113, I.&G.N.R.R. Sur., Blk. 5, Carson Co.	Absp.	15,000
Phillips Petroleum Co., Pantex	SE cor., Mary Whitley Sur., Blk. 8, Hutchinson County	Absp.	50,000
Phillips Petroleum Co., Pioneer	SW, Sec. 21 or S cen. border S. D. Nelson 160-a. Sur., Eastland County	Absp.	18,000

TEXAS (Continued)

Company and plant address—	Field location—	Type of plant	Daily cap'y gallons
Phillips Petroleum Co., Rock Creek	N NW Sec. 22, Blk. Y, A. &B. Sur., Hutchinson County	Absp.	45,000
Phillips Petroleum Co., Roeser	SW SW Sec. 17, Blk. 8, T.&P.R.R. Sur., Stephens County	Absp.	12,000
Phillips Petroleum Co., South Bend	20-a. N cor. J. Garrett Sur. A-108, Young County	Absp.	9,000
Phillips Petroleum Co., Sanford	Sec. 81, Blk. 46, H.&T.C. R.R. Sur., Hutchinson County	Absp.	15,000
Phillips Petroleum Co., Wooten	8-a. W half NE, Sec. 43, Blk. 6, T.&P. Sur., Stephens County	Absp.	65,000
Phillips Petroleum Co., Texroy	SE Sec. 3, Blk. B-3, D.&S. E.R.R. Sur., Hutchinson County	Absp.	45,000
Red River Oil Co., Electra	Electra	Comp.	2,000
Roeser & Pendleton, Inc., Fort Worth	Albany	Absp.	22,000
Roeser & Pendleton, Inc., Fort Worth	Albany	Absp.	10,000
Shell Petroleum Corp., Pampa	SW Sec. 83, Blk. 3, O.&G. N. Sur.	Absp.	10,000
Shell Petroleum Corp., Pampa	SE Sec. 107, Blk. 5, O.&G. N. Sur.	Absp.	7,000
Shell Petroleum Corp., Bangs	S.A.&M.R. Sur., Brown Co.	Absp.	4,500
Signal Gasoline Co. of Texas, Big Lake	Sec. 36, Blk. 9, Reagan County	Absp.	25,000
Silurian Oil Co., Burkburnett	NE Part-Morris May Sur. No. 8 and G.C.&S.F.R.R. Nos. 5 and 6, Wichita County	Comp.	1,300
Simms Oil Co., Olney	Carpenter lease	Comp.	700
Skelly Oil Co., Box 336, Whittenburg	Blk. Y, Hutchinson County (6)	C-A	35,000
Skelly Oil Co., Box 952, Burkburnett	Darby lease, Burk Townsite (3)	Comp.	11,000
Skelly Oil Co., Box 127, Skellytown	Schafer ranch, Blk. 4, Carson County	C-A	35,000
Smith-Hanlon, Inc., Breckenridge	Breckenridge	C-A	10,000
Southern Gasoline Co., Ranger	Tiffin	Absp.	2,500
The Texas Company, Electra	One-half mi. NW Electra, Wichita County	Comp.	14,000
The Texas Company, Burkburnett	3 mi. NW Burkburnett, Wichita County	Comp.	33,000
The Texas Company, Olney	2½ mi. NE Olney, Archer County	Comp.	9,100
Texas Gasoline Co., Desdemona	1½ mi. from Desdemona	Absp.	2,000
Texas Pacific Coal & Oil Co., F. & M. Bank Bldg., Fort Worth	Mingus	Absp.	5,000
Texas Pacific Coal & Oil Co., F. & M. Bank Bldg., Fort Worth	Caddo	Absp.	15,000
Texas Pacific Coal & Oil Co., F. & M. Bank Bldg., Fort Worth	Eliasville	Absp.	7,000
Texas Pacific Coal & Oil Co., F. & M. Bank Bldg., Fort Worth	Eliasville	Absp.	7,000
Tidal Western Oil Corp., Tulsa, Okla.	Burkburnett	Absp.	10,000
Transcontinental Oil Co., Caddo	Sec. 14, Blk. 4, Limestone County	Comp.	*
Transcontinental Oil Co., Mexia	Rossen farm	Char.	*
Valley Osage Oil Co., Mayo Bldg., Tulsa, Okla.	Erath County	Comp.	1,000
Waggoner Refining Co., Electra	Electra	Absp.	5,000
Ward Gasoline Co., Box 108, Breckenridge	7 mi. N of Breckenridge on J. T. Ball lease	Absp.	5,000
Western Oil Corp. of Texas, 604 Hamilton Bldg., Wichita Falls	South Electra	Absp.	9,000
Wilcox, E. F., Oil & Gas Co., Pampa	Sec. 62, Blk. 3, I.&G.N. Sur., Gray County	Absp.	10,000

†Under construction.

WEST VIRGINIA

American Oil Development Co., 1414 Oliver Bldg., Pittsburgh, Pa.	Frew	Comp.	1,500
American Oil Development Co., 1414 Oliver Bldg., Pittsburgh, Pa.	Wick	Comp.	150
American Oil Development Co., 1414 Oliver Bldg., Pittsburgh, Pa.	Hebron	Comp.	175
Cabin Creek Gas Co., Mammoth	Cabin Creek	Comp.	2,500
Carbide & Chemicals Corp., New York, N. Y.	Big Sandy district, Kanawha County	Comp.	1,600
Carnegie Natural Gas Co., Hundred	Wetzel County	Absp.	3,100
Carnegie Natural Gas Co., Underwood	Tyler County	Absp.	2,040
Carnegie Natural Gas Co., Woodruff	Marshall County	Absp.	
Carnegie Natural Gas Co., Pine Grove	Wetzel County	Absp.	1,080
Carnegie Natural Gas Co., Toll Gate	Ritchie County	Absp.	
Casto Oil Co., St. Marys	Pleasants County	Comp.	250
Chemical Oil & Gas Co., Big Bend	Sherman district, Calhoun County	Comp.	750
Colonial Oil Co., Parkersburg	Lima, Tyler County	Comp.	100
Dinsmoor Oil Co., St. Marys	Crawford County	Comp.	100
Dinsmoor Oil Co., St. Marys	Clark County	Comp.	50
Dinsmoor Oil Co., St. Marys	Pleasants County	Comp.	750
Dunn-Mar Oil & Gas Co., Route 3, Fairview	Clay district, Monongalia County	Comp.	90
Federal Oil & Gas Co., The, Elizabeth	Burning Springs district, Wirt County	Comp.	250
Federal Oil & Gas Co., Weston	Weston	Comp.	150
Glenn, S. B., St. Marys	Henry's Camp	Absp.	*50
Hapgood, Roswell T., Charleston	Cedar Grove	Char.	3,500
Henighan & Hanlon, West Union	Arnolds Creek	Comp.	250
Hope Construction & Refining Co., Sistersville	Tyler County	Absp.	400
Hope Construction & Refining Co., Bristol	Harrison County	Absp.	8,000
Hope Construction & Refining Co., Barren Creek	Kanawha County	Absp.	12,000
Hope Construction & Refining Co., Ellenboro	Pleasants County	Absp.	300
Hope Construction & Refining Co., Spencer	Roane County	Absp.	1,000
Hope Construction & Refining Co., Farmington	Marion County	Absp.	15,000
Hope Construction & Refining Co., Sistersville	Tyler County	Comp.	1,000
Hope Construction & Refining Co., Mount Clair	Harrison County	Absp.	2,500
Hope Construction & Refining Co., Pine Grove	Wetzel County	Absp.	40,000
Hope Construction & Refining Co., Littleton	Wetzel County	Absp.	15,000
Hope Construction & Refining Co., Sistersville	Tyler County	Comp.	1,500
Hope Construction & Refining Co., Waverly	Wood County	Absp.	5,000
Hope Construction & Refining Co., Middlebourne	Middlebourne	Comp.	400
Hope Construction & Refining Co., Rachel	Marion County	Absp.	10,000
Hudson Oil Co., Parkersburg	Cornwallis, Ritchie County	Comp.	100
Huntington Development Co., Hubball	Lincoln	Char.	12,000
Imperial Oil & Gas Products Co., Pittsburgh, Pa.	Harrisville	C-A	2,000
Kanawha Oil Co., Jacksonburg	Buffalo Run	Absp.	1,600
Kanawha Oil Co., Jacksonburg	Buffalo Run	Comp.	100
McKelvey Oil & Gas Co., Sistersville	Ellsworth district, Tyler County	Comp.	50
Manufacturers Light & Heat Co., Porters Falls	Greene Township	Absp.	6,540
Manufacturers Light & Heat Co., Rosbys Rock	Clay Township	Absp.	1,740
Manufacturers Light & Heat Co., Sedalia	McClellan Township	Absp.	*2,360
Melrose Oil & Gas Co.	Middlebourne	Comp.	35
Melrose Oil & Gas Co.	Middlebourne	Comp.	25
Melrose Oil & Gas Co.	Middlebourne	Comp.	25
National Compressing Co., Parkersburg	Rutherford, Ritchie County	Comp.	50
New York Petroleum Co., Parkersburg	Rutherford, Ritchie County	Comp.	100

(Continued on Page 128)

The **Bull Dog** *of the* **Great Open Spaces**

OIL FIELD conditions *usually* test the stamina of a tire.

But here is a tire that tests *oil fields* . . . it fights right back at the mud ruts, the sun-baked prairies, swamps and cactus!

It's the Goodrich Oil Field Special. Experienced truck drivers call it "the bull dog of the great open spaces."

Big, tough and burly. A durable carcass that resists the pounding of loose, over-size stones on raw gravel roads . . . the sharp thrusts of road impacts! And the heat of day-and-night driving with trucks loaded to the last hundredweight and beyond.

A tire that takes the miles with bull dog-like indifference to punishment . . . and rolls relentlessly on regardless of roads, of heat or cold.

For traction . . . for long wear . . . for *oil field special trucking conditions* . . . specify Goodrich Heavy Duty Oil Field Specials.

The Goodrich Heavy Duty Oil Field Special
A tough, sinewy body with tread shoulders designed like the undershot jaw of a bull dog to give additional traction

Other tires are scurrying prairie dogs by comparison

SPECIFY GOODRICH ON YOUR NEXT TRUCK

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Pacific Goodrich Rubber Co., Los Angeles, Calif. In Canada: Canadian Goodrich Company, Kitchener, Ont.

WEST VIRGINIA (Continued)

Company and plant address—	Field location—	Type of plant	Daily cap'y gallons
Ohio Fuel Oil Co., Sloffel	Elk district	Absp.	1,000
Ohio Fuel Oil Co., Charleston	Blue Creek	Comp.	1,050
Ohio Fuel Oil Co., Charleston	Schroeder	Comp.	2,400
Oil & Gas Co., The, St. Marys	Ritchie County	Comp.	300
Owns, Libbey-Owens Gas Dept., Charleston	South Malden, Kanawha County	Absp.	10,000
Pittsburgh & West Virginia Gas Co., Hundred	Wetzel County	Absp.	6,000
Pure Oil Co., Dawes	Kanawha County	C-A	10,000
Ramage, S. Y.	Bens Runs	Absp.	15
Reno Oil Co., Sistersville	Tyler County (4)	Comp.	607
Reno Oil Co., Sistersville	Ritchie County (3)	Comp.	180
Reserve Gas Co., 545 William Penn Way	Valley Chapple	Absp.	20,000
Salem Gasoline Co., Salem	Bristol	Absp.	2,000
Schlegel, P., and Edward Fried		Comp.	85
Southern Oil Co., Eureka	Pleasants County	Comp.	100
Southern Oil Co., McFarlan	Ritchie County	Absp.	1,500
Southern Oil Co., Porters Falls	Wetzel County	Comp.	100
Southern Oil Co., Sistersville	Tyler County	Comp.	150
South Penn Oil Co., Pittsburgh, Pa.	Blackshere	Comp.	
South Penn Oil Co., Pittsburgh, Pa.	Bula	Comp.	
South Penn Oil Co., Pittsburgh, Pa.	Carpenter	Comp.	
South Penn Oil Co., Pittsburgh, Pa.	Copley	Comp.	
South Penn Oil Co., Pittsburgh, Pa.	Diamond	Comp.	
South Penn Oil Co., Pittsburgh, Pa.	Edgell	Comp.	
South Penn Oil Co., Pittsburgh, Pa.	Fairview	Comp.	
South Penn Oil Co., Pittsburgh, Pa.	Folsom	Comp.	
South Penn Oil Co., Pittsburgh, Pa.	Fink	Comp.	
South Penn Oil Co., Pittsburgh, Pa.	Freeport	Comp.	
South Penn Oil Co., Pittsburgh, Pa.	Griffith	Comp.	
South Penn Oil Co., Pittsburgh, Pa.	Hammock	Comp.	
South Penn Oil Co., Pittsburgh, Pa.	Hartley	Comp.	
South Penn Oil Co., Pittsburgh, Pa.	Hawkins	Char.	†24,000
South Penn Oil Co., Pittsburgh, Pa.	Langfit	Comp.	
South Penn Oil Co., Pittsburgh, Pa.	Lynch	Comp.	
South Penn Oil Co., Pittsburgh, Pa.	Madison	Comp.	
South Penn Oil Co., Pittsburgh, Pa.	Mets	Comp.	
South Penn Oil Co., Pittsburgh, Pa.	Morgan	Comp.	
South Penn Oil Co., Pittsburgh, Pa.	Pinch	Comp.	
South Penn Oil Co., Pittsburgh, Pa.	Pine Grove	Comp.	
South Penn Oil Co., Pittsburgh, Pa.	Rock Creek	Comp.	
South Penn Oil Co., Pittsburgh, Pa.	Seckman	Comp.	
South Penn Oil Co., Pittsburgh, Pa.	Shinnistown	Comp.	
South Penn Oil Co., Pittsburgh, Pa.	Stringtown	Comp.	
South Penn Oil Co., Pittsburgh, Pa.	Sweeney	Comp.	
South Penn Oil Co., Pittsburgh, Pa.	Tanner	Comp.	
South Penn Oil Co., Pittsburgh, Pa.	Tariff	Comp.	
South Penn Oil Co., Pittsburgh, Pa.	Victor	Comp.	
Sutton Bros., New Cumberland	L. Gardner farm, Hancock County	Comp.	150
Transcontinental Oil Co., Blue Creek	Kanawha County	Comp.	1,000
Transcontinental Oil Co., Clover	Roane County	Comp.	600
Transcontinental Oil Co., Wellsburg	Brooke County	Comp.	600
Treat, E. M., Oil & Gas Co., Pennsboro	Ritchie County	Comp.	150
Tuel & Thoenen, Sistersville	Sistersville (2)	Comp.	600
Tyler Oil Co., Sistersville	Tyler County	Comp.	152
Tyler Oil Co., Sistersville	Monroe County	Comp.	32
Viking Gasoline Corp., Morgantown	Morgantown	Char.	1,000
Viking Gasoline Corp., Farmington	Marion County	Char.	1,500
Viking Gasoline Corp., Martha	Cabell County	Char.	1,000
Virginian Gasoline & Oil Co., Blue Creek	Kanawha County	Comp.	1,200
Virginian Gasoline & Oil Co., Charleston	Kanawha County	Char.	25,000
Virginian Gasoline & Oil Co., Clendenin	Kanawha County	Absp.	40,000
Virginian Gasoline & Oil Co., St. Albans	Kanawha County	Char.	3,500
Virginian Gasoline & Oil Co., Stoffel	Kanawha County	Absp.	1,200
Virginian Gasoline & Oil Co., Mammoth	Kanawha County	Absp.	2,500
Virginian Gasoline & Oil Co., Mammoth	Kanawha County	Absp.	1,000
Virginian Gasoline & Oil Co., Ona	Cabell County	Absp.	15,000
Virginian Gasoline & Oil Co., Porter	Clay County	Comp.	1,500
Virginian Gasoline & Oil Co., Sandyville	Jackson County	Char.	40,000
Virginian Gasoline & Oil Co., Three Mile	Kanawha County	Absp.	3,000
Virginian Gasoline & Oil Co., Charleston	Kanawha County	Char.	2,000
Virginian Gasoline & Oil Co., Spencer	Roane County	Char.	12,000
Virginian Gasoline & Oil Co., Pad	Roane County	Absp.	800
Virginian Gasoline & Oil Co., Walgrove	Kanawha County	Absp.	1,000
Virginian Gasoline & Oil Co., Kermit	Martin County	Absp.	7,500
Watson, G. L., Parkersburg	Belmont	Comp.	50
Wiser Oil Co., Sistersville	Roane County	Comp.	400

†Combined capacity of 30 plants.

WYOMING

Company and plant address—	Field location—	Type of plant	Daily cap'y gallons
Carter Oil Co., Tulsa, Okla.	Salt Creek	Absp.	15,000
Continental Oil Co., McFadden	Sec. 34-20-73, Carbon County	Absp.	4,000
Midwest Refining Co., Casper	Salt Creek Field	Comp.	30,000
Midwest Refining Co., Casper	Elk Basin Field	Comp.	†
New York Oil Co., Casper	Teapot Dome, Naval Reserve No. 3	Comp.	2,000
Ohio Oil Co., Manville	Niobrara County	Absp.	7,500
Ohio Oil Co., Columbine	Natrona County	Absp.	14,400
Ohio Oil Co., Kirby	Hot Springs County	Comp.	7,560
Producers & Refiners Corp., Box 1739, Casper	N half NW Sec. 7-33n-79w, Natrona County	Absp.	3,500
Standard Engineering Co., Casper	Casper	Absp.	3,500

†Being used to repressure sand; no gasoline being marketed.

FEWER PLANTS WITH LARGER CAPACITIES

(Continued from Page 101)

be able to take care of the new wells yet to be completed.

The largest plant in Oklahoma and the entire Mid-Continent Field is the Bowlegs plant of the Sinclair Oil & Gas Co. This plant, which is located in Section 35-9-6 of the Greater Seminole area, has a rated capacity of 100,000 gallons. The company's Lima plant in the old Seminole Pool follows closely with a rated capacity of 80,000 gallons daily. The Sinclair company is the largest manufacturer in Greater Seminole and the entire State.

Approximately 50 per cent of Oklahoma's operating capacity of 2,651,677 gallons daily is found in the Greater Seminole area. The older pools of the State in most cases are not holding their own in gasoline output. It is expected that the Seminole production will decline later in the year; and unless new fields are opened up, this will mean a decline in the State's total production.

Texas

Texas, the third largest state in natural gasoline production, boosted the capacity of its operating plants from 1,565,919 gallons a year ago to 1,723,325 gallons in this year's report. The number of operating plants decreased from 152 to 148.

From an engineering angle, an outstanding development in Texas operations was the building of a plant in Crane County by the Phillips Petroleum Co. This plant, of the oil-absorption type, has a capacity of 75,000 gallons daily and is actually producing around 60,000 gallons daily. It is operated with gas of high sulphur content and a relatively small gasoline yield.

Manufacturers have been loath to enter the areas where the gas of this character is available. The gas is highly corrosive to gathering systems and plant equipment. The Phillips plant is designed to take care of the peculiar operating problems. Special metals are being used when necessary to combat corrosion. The output at present is being mixed with crude oil and moved by pipe line to a Gulf Coast buyer. It is said that the company has perfected a treating process which will enable them to meet the usual specifications in the manufacture of finished products at the plant.

The success of the Phillips operation is expected to result in additional plants being built in the West Texas area. In fact, one company has already announced plants. The construction and operating difficulties, however, assure that the expansion will be confined to those companies well situated from both a manufacturing and marketing angle.

The natural gasoline production of the old North Texas and Ranger areas has held up remarkably well during the past year. Some of the plants have been modernized, and this has tended to increase and reduce waste in the plant operation.

Other States

The three largest states in natural gasoline manufacture—California, Oklahoma and Texas—have 83 per cent of the total capacity in the United States. Many of the smaller states have increased their capacities. West Virginia, which is the fourth largest state, increased its capacity from 383,675 gallons daily to 401,575 gallons. The capacity of Louisiana increased from 307,926 gallons daily to 326,785 gallons. The capacity of Kansas plants decreased slightly, while Arkansas increased.

East of the Mississippi River, there were the usual large number of plants of small capacity. Quite a number of 10, 25 and 50-gallon plants reported as operating a year ago are shut down, and in several cases dismantled. In the case of these smaller plants, the general practice is to mix the gasoline with crude oil. Its market significance is thus confined to the increased yields of gasoline secured at the refineries.

The Rocky Mountain capacity is hardly more than holding its own. No new fields have been opened up, and the plants are operating with a settled supply coming from old wells. The capacity of the nine operating plants in Wyoming is now given at 136,460 gallons daily.

TRENDS IN STORAGE OF NATURAL GASOLINE

(Continued from Page 92)

will build up to a pressure of about 37 pounds relieving the tank with a venting area of 32 square inches. The two valves may be connected to the tank with a 6-inch pipe, if not too long, and yet the valves should be removed far enough from the tank so that heat from the vapors if ignited will not cause adjacent tanks to relieve.

Tanks such as are in general use will not stand any external pressure and vacuum relief valves should be provided. A 2-inch check valve generally serves for this purpose, the only precaution necessary is to install one where operation will not be prevented by condensation collecting and freezing at the valves.

Flexibility in Piping

The piping should be designed to give some flexibility. Overhead piping is generally more subject to expansion than the piping underground, but consideration must be given to the fact that tanks will settle unevenly. Several fires have occurred from fittings breaking because of pipe strains and more general use should be made of expansion or flexible pipe joints, particularly where more than four or five tanks are put in the same battery.

Probably every company has had some experience in finding a different grade of gasoline in the tank car than in the tank and has traced it to the absorption of lighter hydrocarbons when pressure was put on the tank with residue gas. Air has been used with a risk. Flue gas should serve this purpose.

The construction of large containers capable of withstanding pressure has long been a problem confronting structural engineers. One of the obvious ways of designing a larger container is to expand the type of storage now in use. Considerable difficulty is encountered in such a design. Supporting such a type of tank is a problem. If the diameter is large the shell must be stiffened to prevent distortion. There is therefore a definite economic limit to the size of the horizontal cylinder container which we can use.

A pressure container was designed some years ago in the shape of an elevated cylindrical tank with an ellipsoidal bottom and top. The natural evolution from this was the spherical tank. This structure was elevated on columns attached to the sphere at the horizontal equator Relatively heavy construction was employed in the support and stiffening was necessary in the tank. The bottom of the tank was subjected to the gas pressure and the total head of the liquid. These tanks were generally successful and the cost was the factor which prevented their more common use. There is no shape which will be entirely free of tendencies toward deformation when subject to the varying stresses of a gas pressure and varying liquid head. However, it is evident that the particular structure which will be most free from tendencies to deform would be approximately the shape taken by the flexible container under the conditions of the combination of gas and liquid loads. The simplest way to illustrate what this shape would be is to fill a rubber balloon with water and place it on a flat surface. It would be seen that the shape taken is that of a spheroid, circular in plan and flattened on the bottom. If a rubber balloon of comparatively thin material is used and the gas pressure is relatively small, the shape will be comparatively large in diameter when compared to height. If the balloon used is of thick rubber and the gas pressure is relatively higher, the form taken is that more nearly a sphere. Such a tank, called the Horton Spheroid, has recently been designed. This tank has the least tendency to deform of any shape and the roof and bottom as well as the shell are all used in approximately uniform stress, consequently it is a relatively economical tank to build.

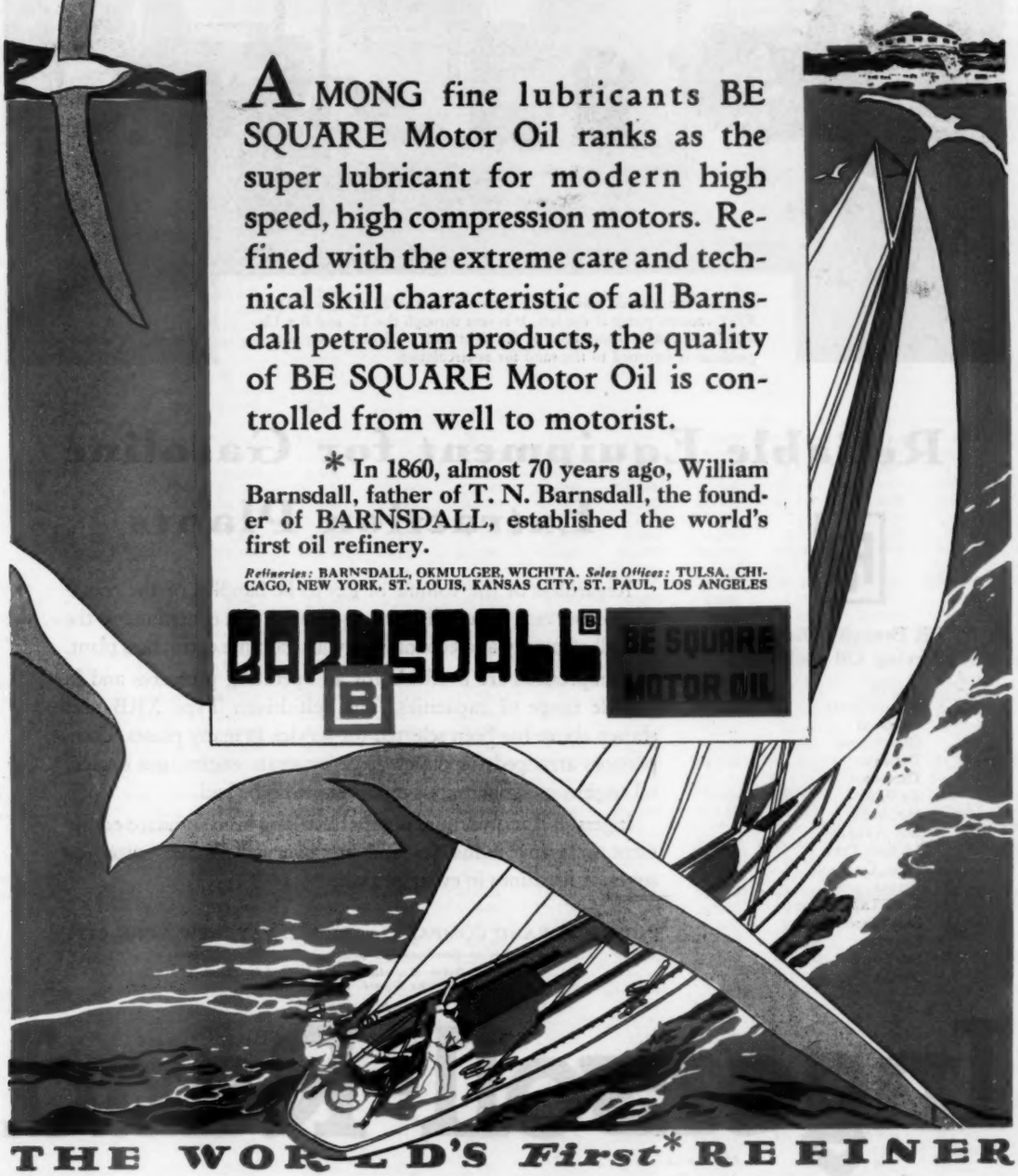
Another pressure container designed by Allen Van Rensselaer is of interest. The container is a vertical steel cylinder and bottomless. A light steel roof is placed in the cylinder some distance from the top. A stand pipe opening below the roof extends some distance above the container. The cylinder is built concentrically within a concrete basin below ground and is supported above the concrete floor by piers about its periphery. This concrete auxiliary tank is called the lower basin. The upper basin is contained within a circular fire wall placed some distance from the container.

When the container is not used for gasoline storage a water level is carried slightly above the roof line. As gasoline is pumped into the container a hydrostatic balance is maintained on both sides of the roof by pumping water into the container above the roof. The pressure on the gasoline is equivalent to the hydrostatic head of gasoline in the stand pipe. The pressures are balanced either automatically or normally. One of the obvious advantages of this container is that the gasoline is entirely surrounded with water and evaporation losses should be very small. There is no vapor space on the gasoline surface excepting in the stand pipe.

In certain situations refrigeration may be resorted to in using light weight steel storage for holding natural gasoline. If spare compressing capacity is available, the use of propane as a refrigerant in a compression expansion cycle is possible in holding down the temperature of the contents of the tank to the point where the vapor pressure is low enough to prevent serious evaporation.

The Smooth Sailing Power Oil

. . . .that makes **motorists** *happy*
and jobbers *prosperous*



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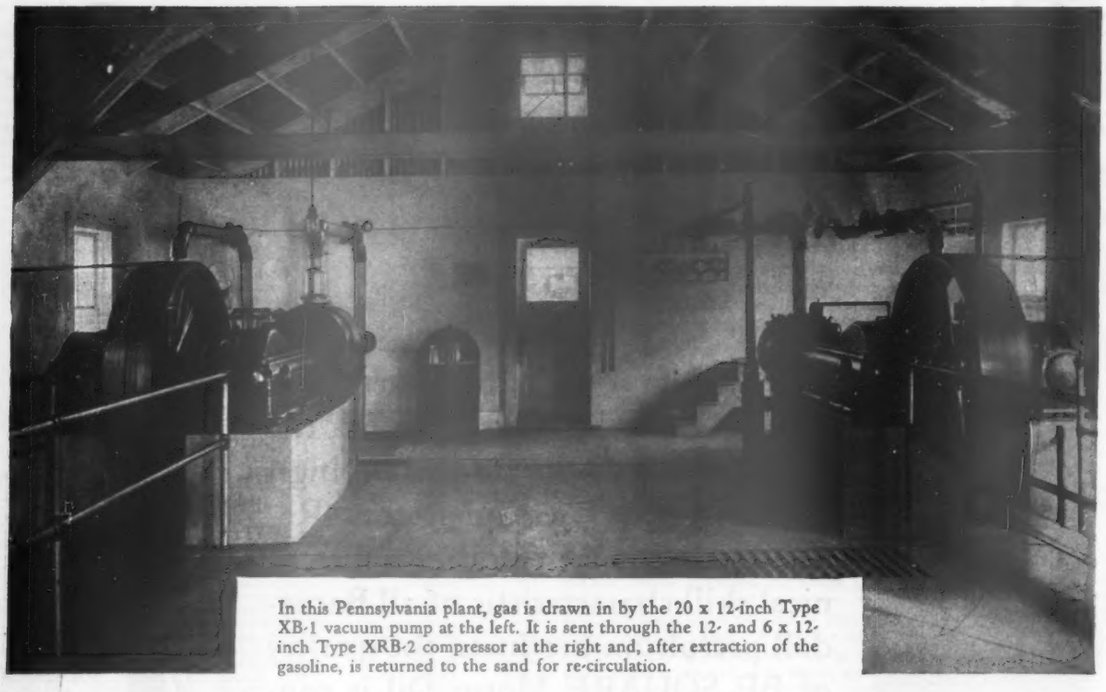

In this Pennsylvania plant, gas is drawn in by the 20 x 12-inch Type XB-1 vacuum pump at the left. It is sent through the 12- and 6 x 12-inch Type XRB-2 compressor at the right and, after extraction of the gasoline, is returned to the sand for re-circulation.

Reliable Equipment for Gasoline Extraction Plants

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1929 Production Two Billion Gallons

Government Reports Show New Peak Will Be Established in Natural Gasoline Output. By-Products Are Important

By W. T. Ziegenhain

At the end of 1929, the natural gasoline industry will very likely be able to record a production of 2,000,000,000 gallons for the year, a new record which seems incredulous considering that only 16 years ago when the first production figures were tabulated, a total of but 24,061,000 gallons is shown. This year, the industry will reach a production sufficient to supply the fuel needs of more than 3,500,000 cars and in addition will supply appreciable quantities of special by-product fuels for industrial and home use

In the future we may expect to be supplied with various solvents, such as the higher alcohols, ethylene, dye stuffs and possibly the research being done in connection with the production of heavier hydrocarbons from gaseous hydrocarbons by means of an electric current of high potential, will lead to the manufacture of new motor fuels and lubricants of a very different nature.

The industry is no longer considered as offering their product as an "adulterant" to be blended with the refinery "straightrun" gasoline but as a stabilized and essential blending material for practically all refinery gasoline and much of it is being superstabilized for automobile and airplane use without blending. A market for a larger production over the future seems assured and serves as an incentive for the intensive development of the new fields in California, Oklahoma and Texas.

Due to the rapid development of the California fields, Oklahoma's position as the leading producer is threatened and to show the relative position of the two states at present it is interesting to note the Bureau of Mines reports the production for California during March as 65,800,000 gallons while the combined production of Oklahoma and Kansas is shown as 59,900,000 gallons. This difference in March places California ahead of all other states for the first quarter of the year.

California Growth

The industry's history in California is of special interest since its production has grown from 32,269,000 gallons in 1922 to 545,200,000 gallons in 1928, a period of only six years. Santo Fe Springs has had a very rapid growth as a result of deeper production. To show the relative importance of the 5 largest fields during 1928 the Bureau of Mines credits Long Beach with a production of 33 per cent, Ventura Avenue 12 per cent, Huntington Beach 9 per cent, Santo Fe Springs 7 per cent and Seal Beach 6 per cent. The production in the balance of the state amounted to 33 per cent of the total.

In March, the latest figures available, the total production of 65,800,000 gallons is divided to show a production of 20,900,000 gallons or 32 per cent from the Long Beach Field, 16,400,000 gallons or 25 per cent from the Santo Fe Springs Field, 10 per cent from Ventura Avenue, 5 per cent from Seal Beach, 4 per cent from Huntington Beach and the balance of 24 per cent from the rest of the state. This further emphasizes the rapidity with which the Santo Fe Springs Field is be-

GOVERNMENT DATA COVERING NATURAL GASOLINE PRODUCTION AND STOCKS

Figures Given in Thousands of Gallons

1929

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Appalachian	11,400	10,900	9,300	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Indiana, Illinois, etc.	1,400	1,200	1,200	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oklahoma, Kansas, etc.	58,200	50,300	59,900	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Texas	31,200	29,800	33,900	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Louisiana-Arkansas	7,800	7,300	7,800	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rocky Mountains	3,300	3,200	3,700	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
California	54,000	54,200	65,800	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total United States	167,300	156,900	181,600	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Daily average	5,400	5,600	5,860	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stocks end of month	31,140	34,465	41,802	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

1928

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Appalachian	10,600	10,300	10,100	9,300	7,400	6,200	5,500	5,800	6,800	7,900	9,200	10,600	99,700
Indiana, Illinois, Kentucky, etc.	1,300	1,300	1,400	1,300	1,200	1,000	900	900	1,000	1,200	1,200	1,500	14,200
Oklahoma, Kansas, etc.	53,000	53,500	54,800	53,600	52,800	51,800	52,300	51,400	52,800	57,100	58,600	60,300	652,000
Texas	26,200	25,500	26,900	26,700	27,200	25,900	26,100	26,400	28,100	30,400	30,400	31,200	331,000
Louisiana-Arkansas	6,700	6,800	7,200	7,800	7,700	7,100	7,300	7,300	7,400	7,500	7,400	7,800	88,000
Rocky Mountains	3,200	3,400	3,800	3,700	4,100	3,800	3,600	4,200	4,200	4,200	3,900	3,800	45,900
California	42,000	38,700	41,700	43,000	45,200	45,500	48,400	48,700	46,200	48,400	47,600	49,800	545,200
Total United States	143,000	139,500	145,900	145,400	145,600	141,300	144,100	144,700	146,500	156,700	158,300	165,000	1,776,000
Daily average	4,640	4,800	4,700	4,800	4,700	4,700	4,600	4,700	4,900	5,100	5,300	5,300	4,900
Stocks end of month	31,100	34,600	35,358	34,900	34,000	27,200	20,000	17,400	18,300	16,900	17,000	25,500	.....

1927

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Appalachian	11,200	9,900	9,600	8,300	7,200	5,800	5,400	5,700	5,600	7,400	8,300	10,000	94,400
Indiana, Illinois, Kentucky, etc.	1,700	1,500	1,500	1,400	1,200	1,100	1,100	1,200	1,200	1,400	1,400	1,300	16,000
Oklahoma, Kansas, etc.	43,600	41,700	45,600	45,300	47,700	47,200	48,200	48,700	50,500	53,000	53,700	57,300	582,500
Texas	24,700	23,900	28,400	26,400	26,700	25,400	25,500	27,200	26,300	27,600	27,500	27,000	316,600
Louisiana-Arkansas	6,900	6,400	7,000	7,000	7,300	6,800	7,000	7,300	6,400	6,900	6,700	6,800	82,500
Rocky Mountains	3,700	3,500	4,000	4,000	4,100	4,200	4,100	3,900	3,900	3,800	3,900	2,800	45,900
California	40,300	36,300	41,300	40,800	41,000	39,400	39,700	41,000	42,400	43,500	41,700	42,300	489,700
Total United States	132,100	123,200	137,400	133,200	135,200	128,900	131,000	135,000	136,300	143,600	143,200	147,500	1,626,900
Stocks end of month	23,516	25,986	29,262	31,774	38,896	40,767	40,346	26,142	30,899	32,797	34,440	30,847	.....

1926

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Appalachian	11,200	10,100	10,200	8,700	6,600	5,800	5,200	5,100	5,700	8,100	9,500	10,600	96,800
Indiana, Illinois, Kentucky, etc.	1,800	1,700	1,800	1,600	1,300	1,100	1,200	1,200	1,300	1,500	1,500	1,700	17,700
Oklahoma, Kansas, etc.	38,300	36,700	41,900	42,200	42,600	41,100	42,300	42,900	42,000	44,500	44,200	44,400	503,100
Texas	17,600	16,300	19,100	18,200	18,400	17,700	18,400	19,200	19,600	21,500	22,500	23,700	232,200
Louisiana-Arkansas	5,800	5,500	6,200	6,000	6,400	6,200	6,500	6,500	6,300	6,500	6,800	7,000	75,700
Rocky Mountains	2,300	2,600	3,400	3,600	3,800	3,800	3,600	4,000	3,900	4,200	3,700	3,000	41,900
California	29,000	27,100	30,500	29,300	31,200	31,300	33,200	33,000	32,800	35,800	36,400	39,800	389,400
Total United States	106,000	100,000	113,100	109,600	110,300	107,000	110,400	111,900	111,600	122,100	124,600	130,200	1,356,800
Stocks end of month	17,000	17,600	20,600	21,300	24,700	22,300	26,500	24,800	20,700	20,500	19,400	19,100	.....

1913-1925

	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925
Arkansas	.....	.....	.....	.....	.....	.....	.....	.....	.....	4,289	16,183	17,533	19,686
California	3,461	7,581	12,835	17,159	28,818	32,269	40,386	48,208	58,220	67,120	173,329	232,579	303,180
Illinois	*	1,164	1,035	2,260	4,934	4,575	6,060	6,055	7,536	7,760	7,356	9,091	9,874
Kansas	.....	.....	.....	215	1,175	2,390	3,284	4,331	3,587	2,856	8,775	11,658	19,592
Kentucky	*	*	*	725	3,818	3,331	5,136	4,497	4,242	5,205	7,601	7,274	7,685
Louisiana	.....	.....	*	2,113	4,980	7,021	10,063	10,610	15,341	29,406	40,720	48,098	43,489
New York	*	*	*	*	*	218	458	411	366	506	408	477	414
Ohio	2,073	2,440	2,199	2,639	5,440	6,745	8,801	10,016	9,100	8,600	10,035	9,443	8,701
Oklahoma	6,463	17,278	31,666	48,360	115,123	163,701	189,995	178,857	185,341	189,404	270,249	301,162	390,861
Pennsylvania	3,680	4,612	5,899	9,715	13,826	15,775	20,284	21,151	19,856	18,518	19,132	19,254	18,850
Texas	.....	.....	*	1,293	6,920	7,326	9,337	32,956	77,141	95,405	177,765	186,571	214,092
West Virginia	7,662	9,278	10,854	18,765	32,669	37,604	52,150	58,941	54,646	56,796	63,381	61,549	58,201
Wyoming	.....	.....	.....	.....	.....	1,579	5,581	8,711	14,558	19,967	21,292	29,272	32,727
Undistributed	722	300	877	249	181	2	.....	.....	.....	.....	.....	.....	.....
Total United States	24,061	42,061	65,365	103,493	217,884	282,536	351,535	384,744	449,934	505,832	815,226	933,861	1,127,470

*Included under undistributed. All data compiled by Bureau of Mines, Department of Commerce.

ing developed as a producer of natural gasoline.

Tracing the development of the industry in California over the past 10 years from the time it supplied less than 12 per cent of the total in 1919 to the present when it is supplying more than one-third the total or 36 per cent, a small consistent increase is seen for the years of 1920, 1921 and 1922 and then a sharp break occurred with the production more than doubling for 1923. Since then, California has been showing an increase in the production of from 60,000,000 gallons to 100,000,000 gallons each year.

Oklahoma has had a very similar history but the increase in its production has been more consistent. The Bureau of Mines figures for 1913 credits Oklahoma with a production of 6,463,000 gallons and now that much gasoline is made in the Seminole Field alone in one week. Over the intervening 16 years there were several years in which large gains were made, reflecting the development of new pools but the growth as a whole has been very consistent. Since 1926, the Kansas production has been grouped with the Oklahoma production but the great bulk of the total comes from Oklahoma, the breakup for 1928 showing Oklahoma to have produced 616,300,000 gallons and Kansas 35,700,000 gallons.

To show the important part the Seminole field plays in the Oklahoma production at present, it may be safely said that at least half of the total is coming from this district. Exclusive of the St. Louis, Pearson and Maud Pools in the Seminole district, 274,500,000 gallons of the 616,300,000 gallons produced in the state came from the Seminole area during 1928. This area has consistently increased its production also.

Burbank Area

The Burbank Field is the second most important field in Oklahoma and in 1928 produced 98,700,000 gallons. The balance of the state produced 270,100,000 gallons. Third in importance, Texas has shown a yearly increase in natural gasoline production. Vast stores of gas in the Panhandle and West Texas areas guarantee that state an important position for years to come.

The gas in general, does not contain a high proportion of recoverable gasoline vapors and for this reason more of the gas has to be processed to recover a like quantity of gasoline. Corrosion has retarded the development of the industry in certain sections of the West Texas Field where the hydrogen sulphide content of the gas sometimes represents as much as 16 per cent of the gas by volume. One of the major companies has built a large plant in the Crane-Upton area where the gas contains a very high percentage of hydrogen sulphide and are successfully operating the plant. The problem of treating the residue gas from the plant so as to be satisfactory for industrial and domestic use is being given very close study by several companies and should an economical method be developed, it will serve as an impetus for the development of the natural gasoline industry in this section.

In the Panhandle, there has been a consistent development of the industry but with crude oil prices relatively low, there has been very little drilling. At such a time as crude oil prices advance to make the development of the Panhandle fields more attractive from the standpoint of the oil producer, a similar increase in the production of natural gasoline may be expected, as much of the area is proved and simply awaits profitable prices.

Appalachian Area

Of the smaller areas, the Appalachian Field continues to maintain a substantial production. It has shown a very slight tendency upward in its production over the last 5 years and in 1928 produced 99,700,000 gallons. This has been made possible through the operation of many small plants scattered throughout the area. It is not likely any material increase will come from this area over the immediate future. Refiners in this territory receive a large portion of their natural gasoline requirements from the Mid-Continent.

Like the Appalachian area, Louisiana and Arkansas have shown slight increases in production from year to year but the total of 88,000,000 gallons for 1928 is considerably below the requirements at the Gulf and this section also depends upon the Mid-Continent for most of its supply. Most of the natural gasoline moving from the Mid-Continent to the Gulf is in tank cars but large quantities are also being supplied now from the Panhandle of Texas by pipeline, mixed with the crude as is common practice in California.

This method of transportation has proved very advantageous to the natural gasoline manufacturer, as large volumes may be handled at a low cost and in turn, the addition of natural gasoline to the crude has lessened its viscosity and made it easier to pump, with the result the capacity of the line has been increased with respect to the amount of crude pumped.

More recently, several new gasoline plants have been constructed in the Monroe area of Louisiana and additional plants have been announced as a result of the decision to permit the residue gas to be burned to make carbon black and to be piped out of the state. Lines are completed or under construction leading out of the Monroe district to carry the residue gas as far south as Baton Rouge and north to St. Louis, Mo. An increase in the production from this area may be expected over the future although no change is shown during the first three months of this year.

The Rocky Mountain area continues to maintain its production but no increase has been shown over the last two years. During 1928 this area supplied 45,900,000 gallons. The Indiana, Illinois area did not maintain a constant production but has been showing a slight decrease yearly. Production in this area during 1928 amounted to only 14,200,000 gallons.

REDUCE HAZARDS OF GASOLINE INDUSTRY

(Continued from Page 98)

pletely or in detail. An attempt has been made to touch upon the more important cases, to illustrate a class of accidents, and to indicate the probable cause. It is for the discussion to follow to bring out other and possibly more accurate pictures of the explosions mentioned, and others not here listed.

FACTORS IN NATURAL GASOLINE MARKETS

(Continued from Page 95)

amounted to merely an attempt to determine within a few points of the color, with the hope that it would be somewhere around 20-22, and an attempt to determine the endpoint of the product within 50-75 degrees Fahrenheit of correct. After this was done, he advised, the only remaining interest of the laboratory was to determine how much of the finished product could be captured and held under the existing regulations in a Class 4 insulated car.

Laboratory control now amounts to a thorough familiarity with components of raw gas, the makeup and breakdown of the absorption mediums, the exact reaction of all contacts in, through and beyond the plant, and a chemical understanding of the finished gasoline. However, the above enumerated performances cover only the high spots, the low spots comprising research in the field of potential byproducts, new markets for materials of present specifications and new specifications for the demand of present markets. The efficient laboratory exerts an effort toward the reduction of both the handling and treating losses and handling and treating costs, and adds generally to the efficient operation of the plant.

The operator who once felt that the laboratory was merely for the purpose of checking the results of his operations now finds his operations predicated on the results obtained in the laboratory, and finds therein a means of recovering the suspended fractions of a cent per gallon otherwise destined to remain lost.

The sales department of today would find their product practically worthless, and I believe it would be impossible to sell natural gasoline without some additional guarantee as to the specifications. Commitments of quantities of specific grades over extended periods are frequently made to be shipped from one particular plant or field. Responsibility therefore falls upon the laboratory to check and anticipate factors which affect the specifications of the finished product of the plant in order that the production therefrom will remain constant and uniform regardless of unexpected changes in atmospheric conditions and storage and plant facilities, as well as possible changes in the character of the raw gas supply. In some fields where the original gas production came from a shallow, or deep sand, and wells are later deepened or plugged back, the constituents of the raw gas may change considerably, and necessitate changes in operation and treating procedures.

In one sweeping statement we might say that upon the efficiency and effectiveness of laboratory control often depends the difference between a profit and loss figure on the financial statement.

Our Natral Gasoline Association has been a most effective means toward the attainment of uniform laboratory control. The association has been able to concentrate the observations of many and devise therefrom one uniform and acceptable method of test. Further, we have standardized our grades to specifications incorporating observations and determinations representing the most desirable characteristics in the finished product.

No acts or actions on our part have been of so much consequence in the marketing of our products as the development of these testing methods and the institution of grades. It would seem, therefore, that continued proper merchandising depends greatly upon our continued efforts toward further simplifying and perfecting our specifications and methods of testing; and determining just what characteristics are most desirable to the consumer in the finished product. We should not be slow to incorporate or eliminate from time to time, such specifications as may be determined desirable or superfluous.

Loading and Shipping

Loading procedure depends almost entirely upon specific conditions such as grade of gasoline manufactured, available storage in terms of daily production, atmospheric conditions, and the requirements of the sales department. These and various other local conditions make loading and loading procedure matters of daily determination and policy.

Various loading procedures have come in for serious study due to the fact that losses sustained transferring the commodity from the tanks to the T/Cs were frequently exceedingly high and out of proportion with the operator's idea of what a normal loss should be. In an attempt to recover these losses, recovery plants and various types of dome covers and loading devices have heretofore been a major problem meriting papers and much discussion by members of the association in previous conventions, but at this time, since such a greater percentage of our production is rectified gasoline the importance of the topic of loading losses has been somewhat minimized. Natural gasoline properly and efficiently rectified loads with a very small percentage of loss, and loading becomes more of a function than a problem.

Shipping

Shipping is a science and the traffic manager who can keep a substantial loaded mileage credit on his company's equipment, expedite loaded movements through to destination, quickly and effectively accomplish diversions, and keep plenty of empties on hand, becomes a part of the sales personnel and policy, and upon his efficiency in handling loaded and empty equipment, shipping papers, return ladings, et cetera, depends the weakness or strength of the sales department's pledge of service to its clientele.

Outages in Transit

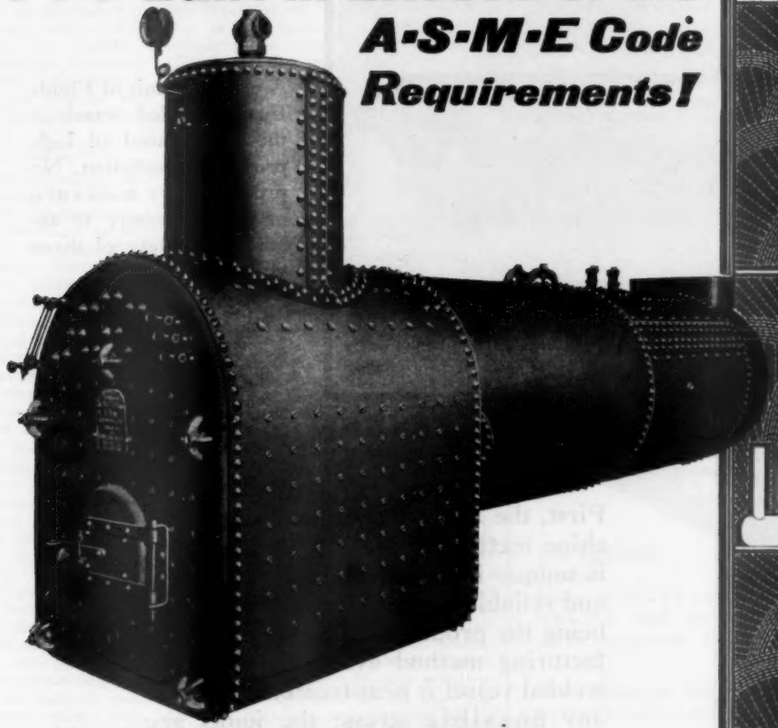
Outage in transit has also commanded its share of the attention of operators for years but for the same reasons set out above our losses in transit have been considerably reduced. As recently as 3 years ago, 10 to 14 inches out of the car upon arrival at destination were not uncommon, and particularly during certain seasons of the year, or upon movements to points where relatively higher atmospheric temperatures prevailed. Some operators in our industry advise that they have observed that outages in transit amount to a greater percentage of the total contents of the car during early spring and late fall, and volunteered the opinion that during these seasons the wide range between daylight and night time temperatures causes breathing and accordingly greater outages than during extremely hot weather when temperatures show a lesser variation between day time and night time. Our own company records do not disclose any marked rule by which we may be guided in allowing outage deductions. In fact, it seems that as a rule irregularity rather than regularity predominates. We have noted that two cars, loaded out of the same stock, moved from the same origin, in cars supposedly the same physical condition, have arrived at destination, simultaneously, one shell full and the other with several inches out. Our own records over several years on cars rolling from various origins to various destinations disclose the existence of extreme irregularity but happily also indicate a decided trend toward lower outages. Our transit losses have been decreasing yearly for the past 3 or 4 years, and we expect this year to show a greater percentage of decline than previously. Many factors of course enter into this—refiners have greatly improved their unloading facilities and methods of handling natural gasoline at destination, proportionately less low recovery material is being shipped; and the loading man has been trained not only how to load but also how to maintain the maximum load to destination, by closely checking the condition of cars and safety valves.

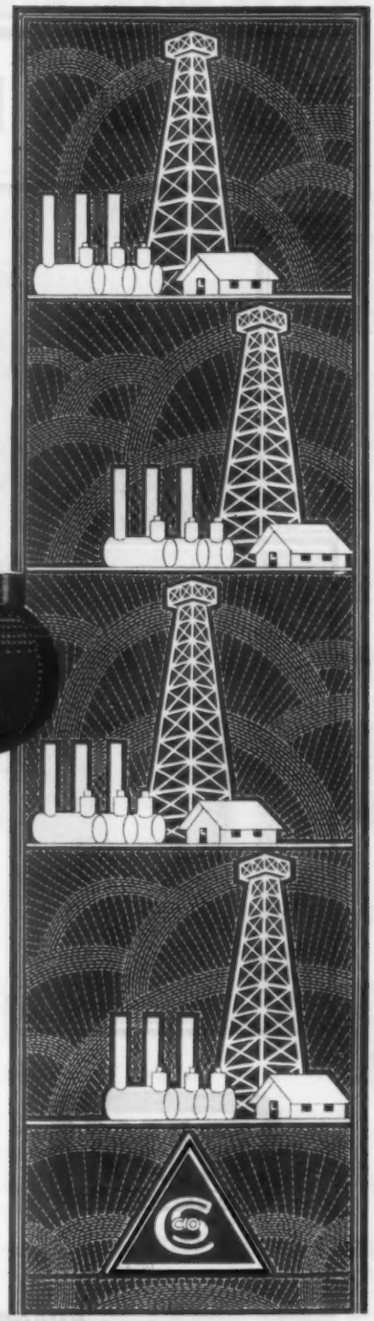
Patented dome covers and safety valves, et cetera, so constructed as to simplify loading operations and minimize losses of time, labor and commodity are available and desirable. However, the efficiency of such devices depends upon the specific operating conditions at the plant, such as characteristics and grade of gasoline produced, loading facilities and other conditions. Each manufacturer should determine the desirability of this added equipment and keep his tank cars in such repair and his equipment so regulated as to reduce possibilities of excessive outage, bad order, throwouts, in transit repairs, etc.

It is the policy of the industry to allow all outage. This guarantee of quantity at destination is qualified, however, upon proper and prompt handling by consignee. If for reasons not due to the acts of the shipper, the car is held under load by consignee for a period longer than 24 hours before gauging, the consignee should absorb such outage as appears in excess of normal outage based upon gauges of other cars handled promptly and under similar atmospheric and physical conditions.

In many instances cars so held beyond the 24-hour gauging period allowed, are likewise not unloaded within the 48-hour unloading period, the detention of equipment therefore causing the shipper further loss. In some instances this loss is negligible, amounting only to the loss of potential mileage earnings, however, instances are frequent when car detention at several destinations simultaneously forces the manufacturer to rent cars at a high trip rate to immediately relieve storage. The storage facilities of the natural gasoline industry are pitifully inadequate, particularly in the districts

ACME
OIL FIELD BOILERS
. . . Built in Excess of the A-S-M-E Code Requirements!





These boilers are built by the Titusville Iron Works under the direct supervision of Hartford Steam Boiler Inspection and Insurance Company. The entire construction of each boiler is much in excess of the ASME Code requirements. This assures longer dependable service.

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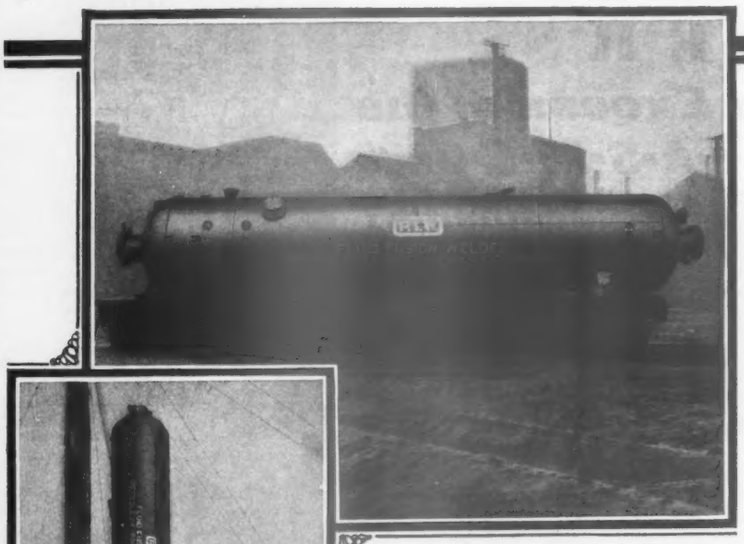
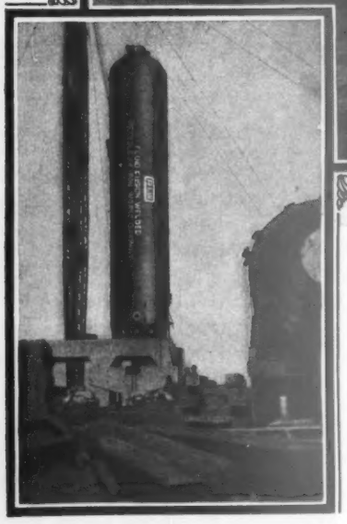
Building Safety Into High Pressure Cracking Units



FLUID-FUSION WELDED

A cracking unit of Fluid-Fusion welded vessels is the safest kind of high pressure installation. No precautionary measure or test necessary to assure the safety of these vessels is omitted.



First, the Fluid-Fusion automatic machine method of welding construction is unique in producing uniformly fine and reliable results. But in addition to being the product of a superior manufacturing method every Fluid-Fusion welded vessel is heat-treated to relieve any possible stress; the joints are sledge-hammer tested at elevated hydraulic pressures, and finally every vessel is hydrostatically tested to a high fibre stress.

P.I.W. STEEL PLATE CONSTRUCTION

Your nearest P.I.W. sales office will tell you more about safety in high pressure cracking.

BRANCH PLANT — BEAUMONT, TEXAS.

THE PETROLEUM IRON WORKS COMPANY

NEW YORK CHICAGO SHARON, PA. HOUSTON TULSA

where large flush production exists. This is due probably to the fact that it is not economically advisable to erect pressure storage to handle an immediate production which is not certain to be maintained over a period. A paper is being delivered in this connection, dealing specifically and admirably with the storage problem, however, I mention storage here in its connection with tank car facilities. Plants not having sufficient storage to protect their production must have insurance in form of excess tank car facilities against probable delay due to transit irregularities, longer than average hauls, or possible forced detention by consignee. Where consignee holds cars, for any reason, in excess of 48 hours, he should notify shipper and arrange to have outage checked within 24 hours and accept the liability of damage or expense to shipper occasioned by delayed return of equipment.

Outage claims should be paid promptly upon receipt, less 1 per cent, or net, depending upon the terms of the sale. The practice and policy of the industry is to allow a claim by consignee covering the difference between the quantity billed and the quantity received, corrected to 60 degrees Fahrenheit and freight paid by consignee on the amount received at 60 degrees Fahrenheit, less than the car capacity.

Off-Specification Claims

Specifications are also guaranteed at destination. Any difference of barometric pressure, atmospheric temperatures, etc., existing at destination must be allowed for at origin since the commodity is guaranteed at destination. Many independent laboratories and services are available to both parties if the necessity for joint inspection develops.

It is preferable, however, to have your own laboratory attendants make the check test with the consignee's chemist. Any irregularity of either's equipment or methods thereby becomes observed and a repetition of the error avoided.

Frequently the error develops into a matter of only the difference in human element in procedures or readings and is easily arbitrated. Under our present regulations of distillation procedure, a difference of 30 to 50 degrees in the endpoint is possible by the use of the electric heater instead of the gas flame. Such differences are not easily adjusted and no settlement can be made entirely satisfactory to both parties.

This condition merits the immediate and serious attention of our association and my previous plea for further simplification and revision of test methods and specifications is repeated here. The adjusting of off-specification claims is a matter of specific occurrence. Each claim must be handled upon its own merits. An off-color or off-doctor car at the rack may represent a complete loss to the consignee not having facilities for rerunning or treating same, whereas the second consignee may either have such facilities or be using such a small percentage of naturals that he could absorb the car at negligible loss. In fact, so many different conditions exist that each off-specification claim is a matter of the moment and said claim must be handled as a separate and specific adjustment, subject to current conditions, operations, facilities and requirements of the consignee.

Primarily we must remember that while it may seem easier to divert the car, such action may seriously damage the refiner whose immediate requirements are thereby not served, and whose position as a consumer of naturals may be hazarded. Reliable shippers will consider the refiner's requirements and be governed accordingly in the settlement of claims or the diversion of the material. We have found reliable and responsible buyers of naturals to be equally fair in their treatment of us and we feel that an honest understanding of each other's problems and operating conditions is the greatest one factor contributing to satisfactory adjustments.

Marketing

To me marketing is figuratively "the end of the rope." A leader in our industry said in discussion about a year ago, "our marketing practices are the laughing stock of the country."

This man must have felt that there was room for improvement in our marketing practices, and I believe we are all in accord there. No doubt there always will be room for improvement and hesitating to adopt apparently constructive policies that later need to be revised is neither progressive nor educational. Experiencing the result of a poor policy at least broadens our capacity for determining a better policy.

However, I believe and am willing to go on record as considering our marketing practices and policies as subordinate to our operating practices and policies. If marketing is "the end of our rope," producing is the rope, and little can be at the end of a poor rope.

Our marketing problems, meriting as they do our sincere study and severe application, will remain unsolved so long as our production continues in excess of our current and prospective consumption requirements. Seasonal over production of our products is profitable and necessary, but yearly over production is disastrous. Storage is necessary and reserves are essential, but no marketing practice can be instituted which will survive a production in excess of current and prospective consumption plus seasonal storage and protective reserves.

My idea of an economic monstrosity is an industry which over a period expects to be able to market its commodity in such a manner as to continue in a good financial position while maintaining supply in excess of demand. But I am not evading the issue of proper marketing, I am merely qualifying the word "proper," feeling as I do that marketing at a loss, while not "proper" is frequently efficient marketing and darn good selling, considering the existence of an over supply for which there is no demand. We have frequently heard the remark that "price is no object, the stuff isn't moving." What folly then to suppose that proper marketing can overcome improper regard for the old law of supply and demand.

Proper marketing is merchandising. Therefore, merchandise your commodity and follow the old precept of doing unto others as you would have them do unto you. If it comes to drawing up a code which merely recites a list of acts that you do not wish to do unto others and do not wish to have others do unto you, and agreement can be reached as to which acts are admittedly unfair, then a code is good. If each company, however, can unqualifiedly say that they are not engaging in any practice of marketing to which they would object in others, and if their practices are showing up to the credit of the industry in which they operate, and to the satisfaction of stockholders and executives of vision, they are merchandising.

Merchandising

On the contrary, when the manufacturer throws material into an unreceptive market, trying to beat the gun of weakening tendencies, and engages in unethical practices, he not only is sacrificing the industry to his immediate advantage, but also to his own permanent loss.

Proper merchandising is a co-ordination of:

Wise construction programs,
Flexible plant control,
Efficient laboratory control,
Service to suit the consumer, and
Proper marketing.

WINK-JAL LINE COMPLETED

HOUSTON, Tex., May 18.—The Texas Pipe Line Co. has completed laying a 10-inch line from Jal, N. Mex., to Wink, Tex., a distance of 22 miles. The line connects with the company's West Texas-Port Arthur line, which now is nearing completion, at Wink, Tex.

The latter line is expected to be running oil not later than June 10. The West Texas end already has been completed and also the 10-inch loop on the Houston-Port Arthur end, leaving only a few short stretches on the remainder.

Do Your Engine Heads and Jackets SCALE ?

To hold your oil engine equipment at top efficiency, it is absolutely essential that the heads and jackets be kept free from scale. In accomplishment of this end, this Company offers a thoroughly effective service, easy, rapid and safe with sufficient flexibility to allow for any operating condition.

In one interesting case where cooling water of high incrusting content is recirculated due to scarcity of water, a special Dearborn formula is used to remove the scale forming mineral before the water enters the system.

In usual practice, however, Dearborn Special 134 is used periodically to clean scale from the cooling jackets, water lines, pumps, coils, meters and wherever the incrustation forms. The action is that of dissolution of the scale which drains off as a sludge leaving the metal entirely clean.

The experience of an engineer in Texas who recently reported taking the plates off his water jackets for the first time in 27 months and returning them immediately because he found no scale, is typical of the experience of those who use Dearborn service.

Can we help you? Discuss your cooling water problem with your Dearborn service man or write us.

Dearborn Cleaners

Dearborn Cleaner No. 7

For opening drains.
For cleaning caked and extra dirty concrete floors.

Dearborn Cleaner No. 5

For general service in removing oil, grease and dirt from all types of oil field equipment.

Dearborn Cleaner No. 3

For cleaning oil and dirt from overalls and clothing.
For reclaiming rags.
For cleaning ordinarily dirty concrete floors.

Dearboline, a non-explosive liquid cleaner that gives surprising results on metal surfaces.

Try Dearborn cleaners. You will be surprised at the effective work they will do.

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Every Dearborn Product is as reliable as is NO-OX-ID, the original rust preventive

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QUITE a BIT

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FOR HARD OR SOFT

DIGGING

Reams as it Digs
Run Fresh Bit to
Bottom Without Reaming

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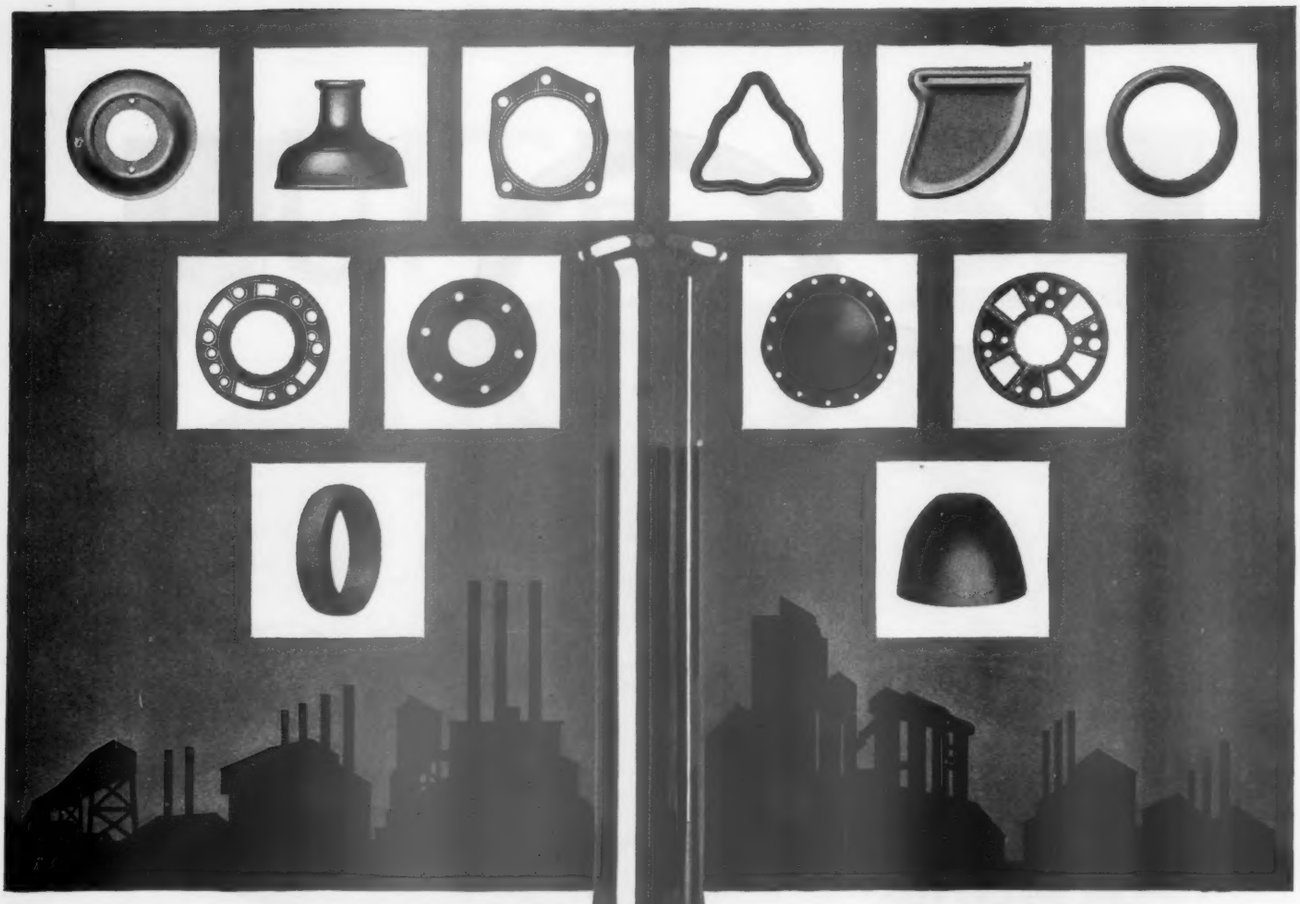

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THE GREATEST NAME IN RUBBER

WILDCAT OPERATIONS IN KANSAS

(Continued from Page 52)

Burger et al's No. 1 Hadley, SW cor. SW NW Sec. 20-11-17w ..... Drlg. 700 ft.
John Brown No. 1 Company's No. 1 Gestner, SE cor. SW NE Sec. 13-13-18w ..... Drlg. 1,400 ft.

EDWARDS COUNTY

Amerada & Wilcox's No. 1 Teasil, C NW NW Sec. 32-25-19w ..... Drlg. 5,127 ft.
British American Oil Co.'s No. 1 McCarty, NE cor. NW Sec. 31-25-17w ..... Sand 4,535-56 ft.; drlg. 4,565 ft. 8,000,000 ft. gas; show oil.

GEARY COUNTY

Wright et al's No. 1 Younker, NW cor. NE Sec. 17-11-5... Shut down 2,150 ft.

GRAHAM COUNTY

Gulf Coast Oil Co.'s No. 1 Johnson, C S half Sec. 27-8-25w ..... Shut down 3,450 ft.

HARPER COUNTY

Amerada Pet. Corp.'s No. 1 Mendiville, C E SE Sec. 34-34-6w ..... Old total depth 5,360 ft.; plugged back to 4,000 ft.; drlg. 5,075 ft.
Independent & Reserve Oil Co.'s No. 1 Moulds, C NE Sec. 7-34-1w ..... Drlg. 275 ft.

HARVEY COUNTY

McCulloch et al's No. 1 Prouty, NW cor. SW Sec. 3-23-1w ..... Rig.
Roth & Parrent's No. 1 Brombrowsky, NW cor. Sec. 26-23-1e ..... Shut down 700 ft.
Empire G. & F. Co.'s No. 1 Tangeman, SW cor. NE NE Sec. 18-23-1e ..... Drlg. 3,539 ft.
Mrs. Gay et al's No. 1 Grove, C NW NE NW Sec. 29-23-1w ..... Drlg. 2,140 ft.
Slick & Corinell's No. 1 Gatz, NW cor. SE Sec. 36-22-1e.. Drlg. 2,443 ft.
Hartman & Skaer's No. 1 Seaman, NW cor. NE SE Sec. 26-24-1e ..... Drlg. 3,090 ft.
Helmerich & Payne's No. 1 Lindamond, C SW NE SW Sec. 2-22-1e ..... Hole full water 3,365-85 ft.; total depth 3,420 ft.; abandoned.
Fisher & Louch et al's No. 1 Reiger, NW cor. NE Sec. 17-23-2 ..... Drlg. 3,040 ft.
Jolly & Ogg's No. 1 Randall, NE cor. NE Sec. 11-24-1w.... Drlg. 3,428 ft.
Patton et al's No. 1 Dunning, SE cor. SW NE Sec. 26-24-1.. Drlg. 2,290 ft.
Rosenthal et al's No. 1 Ingalls, C NW SW Sec. 24-23-3w.. Shut down 1,405 ft.
Jolly & Ogg's No. 1 Hupp, SE cor. NE Sec. 22-23-1w.... Drlg. 2,465 ft.

JEFFERSON COUNTY

Wichita Oil Co.'s No. 1 Simpson, NW cor. SW SW Sec. 19-10-17 ..... Rigged up and shut down.

KINGMAN COUNTY

Gypsy Oil Co.'s No. 1 Kincaid, NE cor. NW, Sec. 18-29-5w ..... Spudding.

LANE COUNTY

Robinson's No. 1 Dickerson, Sec. 11-18-27w ..... Shut down 2,650 ft.
Blankenship Pet. Co.'s No. 1 Schaeffer, NE cor. NE Sec. 24-16-28w ..... Spudded and shut down.

MARSHALL COUNTY

Irwin et al's No. 1 Cooper, NE NW Sec. 10-3-7e..... Drlg. 1,320 ft.
Empire O. & R. Co.'s No. 1 Scally, SW NE NE Sec. 28-19-2e ..... Drlg. 2,015 ft.

MARION COUNTY

Hobworth et al's No. 1 Skiles, SE NW NW Sec. 30-21-3e.. Spudding.
T. C. Johnson's No. 1 Doltweiler, SW cor. NE NW Sec. 3-18-4e ..... Underreaming 2,320 ft.
Hartman & Skaer and White Eagle's No. 1 Kline, NE NW Sec. 28-18-3e ..... Underreaming 2,710 ft.; 6-in. csg.
Connell & Prairie's No. 1 Zirak, SE cor. SW Sec. 3-18-3e ..... Drlg. 2,500 ft.
General Utilities Co.'s No. 1 Burkholder, Sec. 18-19-3e... Drlg. 2,735 ft.
General Utilities Co.'s No. 1 Propp, NE cor. SE SW Sec. 8-19-4e ..... Rig.
J. E. Hauna's No. 1 Pankratz, NE cor. NE SW Sec. 13-20-3 ..... Rig.
A. E. Meyers' No. 1 Papp, SW cor. SW NE Sec. 10-18-2.. Shut down 2,805 ft.
Frank L. Moore's No. 1 Miller, NE cor. NE Sec. 26-19-1.. Drlg. 2,530 ft.

McPHERSON COUNTY

Helmerich & Payne's No. 1 Klassen, SE NE NE Sec. 14-21-1w ..... Rig.
McPherson Oil & Gas Co.'s No. 1 Decker, C SE Sec. 11-19-2w ..... Drlg. 2,000 ft.
Helmerich & Payne's No. 1 Rosen, NE cor. SE SW Sec. 25-21-2w ..... Shut down 2,100 ft.
McPherson Gas Co.'s No. 1 Chinberg, NW cor. Sec. 18-19-2w ..... Rig.
McPherson O. & G. Co.'s No. 1 Rasmusson, SW cor. Sec. 8-18-3w ..... Drlg. 750 ft.
Ted Washabaugh's No. 1 Vosshell, NE cor. NE Sec. 9-21-3w ..... Fishing 3,301-04 ft.; show of oil.
McPherson Gas Co.'s No. 1 Reitz, NW cor. SE SW Sec. 1-20-2w ..... Drlg. 1,822 ft.
J. H. Tatlock's No. 1 Hayer, C SW NE Sec. 32-20-1w.... Drlg. 1,700 ft.
Marland Prod. Co.'s No. 1 Wilkering, C SW SW Sec. 9-21-1w ..... Underreaming 3,535 ft.

MORRIS COUNTY

Hiatt et al's No. 1 Blythe, NW NE Sec. 35-15-5e..... Drlg. 1,750 ft.

NESS COUNTY

Barnsdall Oil Co.'s No. 1 Lauk, C SW Sec. 35-18-21w..... Drlg. 4,177-82 ft.; show gas and oil.

NORTON COUNTY

Southwestern Petroleum Co.'s No. 1 Montague, NE SW SW Sec. 28-1-22w ..... Abandoned 1,480 ft.

OSBORNE COUNTY

Mid-Kansas' No. 1 Boyce, SE cor. NW Sec. 18-6-13w.... Spudding.
Empire O. & R. Co.'s No. 1 Crest, SE NE Sec. 30-9-14w ..... Underreaming 3,398 ft.
Trees Oil Co.'s No. 1 Payenter, NE cor. SE SE Sec. 22-22-6-15 ..... Shut down 650 ft.
S. D. Jarvis' No. 1 Jellison, SE cor. SE Sec. 13-10-15w.. Drlg. 3,315 ft.

OTTAWA COUNTY

Anderson et al's No. 1 Bank, NE cor. NW Sec. 28-10-2w.. Shut down 3,610 ft.

PAWNEE COUNTY

F. C. Troupe's No. 1 Lovett, CEL NE NE Sec. 31-21-16w.. Shut down 1,560 ft.

PHILLIPS COUNTY

Watsonian-British American's No. 1 Wellman, C SW SW Sec. 34-2-19w ..... Shut down 1,847 ft.
Watsonia Oil Co.'s No. 1 Marklein, NE cor. SW Sec. 21-3-19w ..... Abandoned 4,071 ft.

PRATT COUNTY

O'Haver & Jones' No. 1 Lunt, C SW NW Sec. 15-28-14w.. Drlg. 1,130 ft.
Empire O. & R. Co.'s No. 1 Henderson, SW cor. Sec. 35-25-4w ..... Drlg. 2,370 ft.

RENO COUNTY

Perry et al's No. 1 Oswald, NE cor. NE SE Sec. 30-22-5w ..... Shut down 2,790 ft.
Milmar Oil Co.'s No. 1 Strickley, SW cor. SW Sec. 17-26-5w ..... Fishing 2,550 ft.

RICE COUNTY

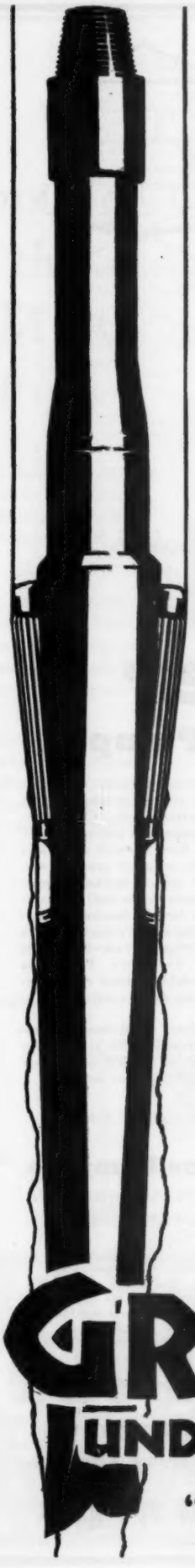
Allison & Fitzwilliams' No. 1 Poland, NE cor. SW NE Sec. 36-19-8w ..... Cellar.
Higgins & Stembubble's No. 1 Shurr, NE cor. SW Sec. 21-20-10w ..... Underreaming casing total depth 1,900 ft.

RILEY COUNTY

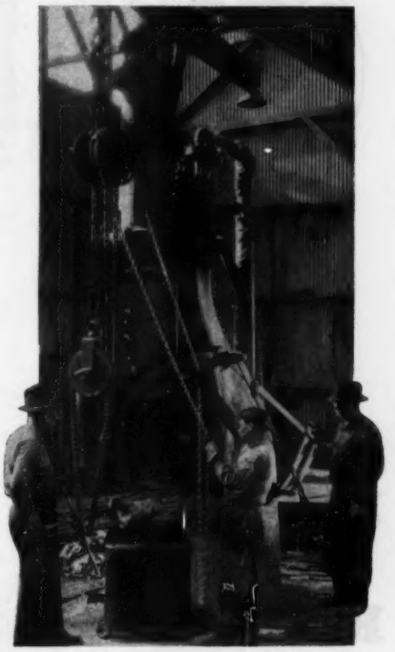
Derby & Shaw's No. 1 Lindstrom, NE cor. Sec. 32-7-5e.. Rig.

RUSSELL COUNTY

Allison & Fitzwilliams' No. 1 Mohenny, NW SE Sec. 5-14-13w ..... Drlg. 1,130 ft.
Phillips Pet. Co.'s No. 1 Salback, SE NW Sec. 32-12-14w ..... Drlg. 1,590 ft.
T. B. Slick's No. 1 Lellaus, SW cor. NE Sec. 36-15-13w.. Drlg. 2,450 ft.



A Steam Hammer of Large Capacity in Operation at Our Plant.



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NO part of manufacturing Grant Underreamers is intrusted to others than our own organization. We consequently KNOW, and do not guess, at the quality and precision of our workmanship. All of which has helped build the Grant reputation for freedom from parts failure and for certainty of performance.

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PUMPS

The modern system of pumping for Refineries

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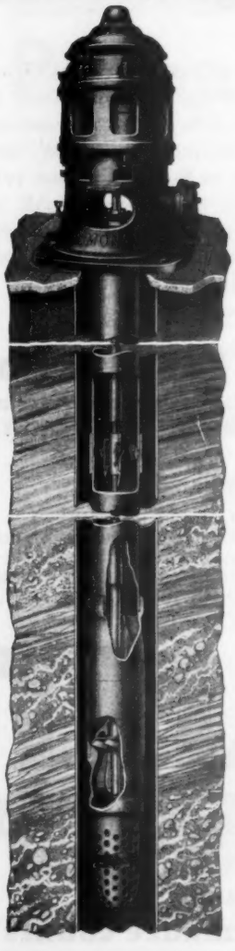
Automatically Pumped



With a Pomona pumping system in your refinery you never have to think about your water supply. Can be operated by automatic or manual control, lifting water from the well direct into elevated tank, mains or pressure system without aid of auxiliary equipment. The water in the well serves as the lubricant for the bearings, resisting sand-cutting and overheating of the bearings. Pomona Water-Lubricated Heavy-Duty Turbine Pumps are sturdy, dependable, seldom require attention and are easy to install.

Deep well pumps of all sizes with application of from 5 to 350 horse power for producing 25 to 4500 gallons per minute. For 4" wells or larger.

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Pomona
Water Lubricated
Heavy Duty Turbine
Pumps

BOOKS COUNTY

Kruger et al's No. 1 Stels, NW SE SW Sec. 12-9-16w ...Spudding.
Burford-Brim's No. 1 Toxa, Sec. 22-9-17w .....Spudded; shut down.
Prairie O. & G. Co.'s No. 1 Gick, SE cor. Sec. 22-9-19w..Drlg. 3,175 ft.
Prairie O. & G. Co.'s No. 1 Sandberg, C SW Sec. 20-9-18w .....Drlg. 3,610-60 ft.; water, shut down 3,676 ft.

RUSH COUNTY

Sinclair Oil & Gas Co.'s No. 1 Seur, C SW NW NW Sec. 8-18-17w .....Drlg. 882 ft.
Danciger Oil Ref. Co.'s No. 1 Swindt, SW cor. Sec. 22-17-17w .....Drlg. 1,635 ft.
Barnsdall Oil Co.'s No. 1 Brock, C SE SE Sec. 21-17-17w .....Drlg. 1,940 ft.
Central Commercial Oil Co.'s No. 1 Brock, SE cor. SW SW Sec. 12-17-16w .....Shut down 50 ft.
Phillips Pet. Co.'s No. 1 Legleiter, NE cor. NW SE Sec. 10-16-18w .....Drlg. 3,743 ft.
Danciger Oil Ref. Co.'s No. 1 Poland, NE cor. SW NE Sec. 17-19-17w .....Drlg. 2,710 ft.
Wilcox Oil & Gas Co.'s No. 1 Schwartzkopf, NE cor. NW SW Sec. 27-17-17w .....Drlg. 2,785 ft.
Wilcox O. & G. Co.'s No. 1 Woodward, NE cor. NE Sec. 35-27-17w .....Drlg. 2,787 ft.

SALINE COUNTY

Dixie Oil Co.'s No. 1 Muir, C SW SE Sec. 6-15-2w ....Drlg. 1,700 ft.
Kinney-Coastal Co.'s No. 1 Hughes, NE cor. Sec. 20-13-4w.Shut down.
M. Estey et al's No. 1 Peterson, C NE Sec. 6-16-5w .....Spudded and shut down.
Boyle et al's No. 1 Miller, SW cor. SE Sec. 21-16-1w.....Shut down 2,615 ft.
Nathan Jones et al's No. 1 Robertson, NW cor. SW Sec. 27-14-2w .....T.D. 3,587 ft.; P.B. shot 60 qts. 3,315-46 ft.; no show; abandoned.
Kenney Coastal Oil Co.'s No. 1 Beal, C NW Sec. 23-14-5w .....Drlg. 2,700 ft.

SEDGWICK COUNTY

Kyle et al's No. 1 Pinney, SW NW SE Sec. 29-28-1w ....Rig.
Simmons & Canary's No. 1 Scott, NE NW NE Sec. 22-26-1e .....Rig.
T. B. Slick's No. 1 Rosenhagen, SW SE NE Sec. 33-27-4w .....Drlg. 2,895 ft.
Hammond & Stout's No. 1 Roeder, SW NW Sec. 23-27-2w .....Drlg. 900 ft.
Twist et al's No. 1 Armstrong, NE NW Sec. 28-26-1e....Rig spudding; shut down.
Shawver et al's No. 1 Scott, SE cor. SW SW Sec. 10-28-1e .....Drlg. 900 ft.
Barnett O. & G. Co.'s No. 1 Davidson, NW cor. NW SW Sec. 27-26-1e .....Rig; spud; shut down.
Lewis et al's No. 1 Taylor, NW cor. NE Sec. 23-27-2.....Drlg. 2,306 ft.
Kyser et al's No. 1 Stroot, SW cor. NW Sec. 8-26-2w.....Drlg. 4,061 ft.
Lario & Blair's No. 1 Tjaden, C NE SE Sec. 22-29-2w....Drlg. 3,810 ft.
R. Magiason et al's No. 1 Buckles, NW cor. SE Sec. 3-28-1w .....Shut down 350 ft.
Magnolia Pet. Co.'s No. 1 Wise, NW cor. NW Sec. 36-28-2w .....Drlg. 3,375 ft.
Blankenship et al's No. 1 Tuttle, SW cor. NW Sec. 1-27-1 .....Drlg. chat 2,994-97 ft.; show oil, testing.
Washabaugh et al's No. 1 Harrison, NW cor. NE NE Sec. 3-26-2w .....Shut down 350 ft.
Morgan & Tilley's No. 1 Fitzgerald, NW cor. NE Sec. 5-26-1w .....Shut down 300 ft.
Twist et al's No. 1 Joseph, CNL SW SE Sec. 4-25-1w.....Drlg. 1,650 ft.
Miller Wentz' No. 1 Shaffer, NW cor. NE Sec. 9-27-2w....Drlg. 2,200 ft.
Kroder et al's No. 1 Harden, SW cor. NW SW Sec. 20-26-1e .....Shut down 1,100 ft.
Morgan et al's No. 1 Corn, SW cor. NE Sec. 28-26-1w..Drlg. 3,390 ft.
Shell Pet. Corp.'s No. 1 Lygrisse, SE cor. NE Sec. 15-26-2e .....Simpson 3,164-73 ft.; swabbing 860 bbls. to 1,900 bbls. a day.
Washabaugh et al's No. 1 Harrison, NW cor. NE NE Sec. 3-26-2w .....Shut down 350 ft.
Sullivan et al's No. 1 Shelly, NW cor. NE SE Sec. 32-29-2e .....Drlg. 2,990 ft.
Hartman & Skaer et al's No. 1 Hutchinson, SE cor. SE SW Sec. 23-28-3w .....Drlg. 3,470 ft.
J. H. Tatlock's No. 1 Cook, SW cor. SW Sec. 25-28-3....Shut down 3,222-37 ft.
Producers Oil Co.'s No. 1 Jones, SW cor. NE SE Sec. 31-26-2 .....Fishing 2,775 ft.
Jones & Kirk's No. 1 Sheppard, SE cor. NE Sec. 4-25-1....Drlg. 3,310 ft.
LaFont et al's No. 1 Carlton, C SE SE SW Sec. 24-28-1e..Shut down 870 ft.
T. B. Slick's No. 1 Rosenhagen, C SW SE NE Sec. 33-27-4w .....Drlg. 2,895 ft.
Frank Wahn's No. 1 Wilson, C NE NW SE Sec. 8-26-1w..Rig and tools.
Patten & Wentz' No. 1 Swanson, NW cor. NE Sec. 6-26-2e.Hole full oil 3,005-10 ft.; 984 bbls. in 12 hrs.; show water.
Connell & Slick's No. 1 Mohannah, C NE SE SE Sec. 3-25-1w .....Drlg. 2,786 ft.
Reynolds & Rogers' No. 1 Updegraft, C SE SW SE Sec. 26-25-1w .....Abandoned.
Jones & Kirk's No. 1 Sheppard, SE cor. NE Sec. 4-25-1e..Drlg. 3,310 ft.

SHERMAN COUNTY

A. L. Henson et al's No. 1 Murry, NE cor. SE NW Sec. 22-7-40w .....Shut down 3,085 ft.

STEVENS COUNTY

Trees Oil Co.'s No. 1 Thompson, C NE SW Sec. 3-35-38w..Shut down 500 ft.
W. Sidwell et al's No. 1 Kelly, SW cor. NE Sec. 16-34-38w .....Shut down 1,320 ft.

SMITH COUNTY

Mid-Kansas Oil & Gas Co.'s No. 1 Unknown, NE cor. NE Sec. 4-2-13w .....Fishing tools 3,565 ft.

SUMNER COUNTY

Gypsy & Blankenship's No. 1 Robeck, C SW SW Sec. 27-34-4w .....Drlg. 1,290 ft.
Gypsy Oil Co.'s No. 1 Williams, NW SE SW Sec. 16-35-3w .....Wilcox 4,768-84 ft.; 1,900 bbls., completed.
Davidson et al's No. 1 Strickland, SW cor. SE Sec. 12-35-1w .....Rig.

TREGO COUNTY

Central Commercial Oil Co.'s No. 1 Ellis, NE cor. SW NE Sec. 20-13-21w .....Shut down 3,955 ft.

WASHINGTON COUNTY

McCool & Vincent's No. 1 Linn, NW cor. NE Sec. 27-4-3..Rig.

WALLACE COUNTY

Morton & Entyre's No. 1 Parker, SE cor. NW SW Sec. 20-13-41w .....Rig.

WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 50)

GRANT COUNTY

Cowden and others' No. 2 Vollmer, CEL NE SW Sec. 22-25-4w .....Shut down 5,640 ft.
Lario-Lathrop's No. 1 Cornell, NW cor. NW Sec. 24-28-3w .....Drlg. 4,665 ft.

GARVIN COUNTY

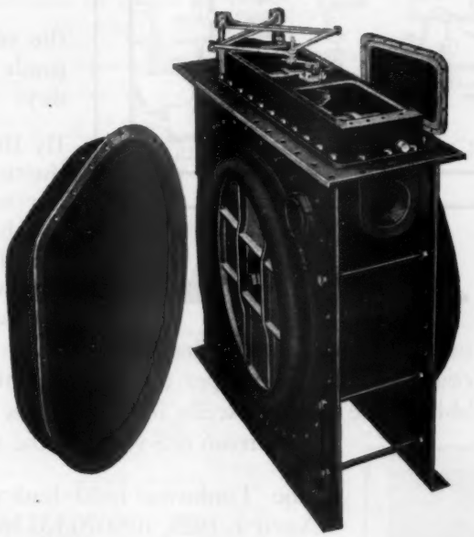
Gilcrease Oil Co.'s No. 1 Kelly, SE cor. NW NE Sec. 36-3-3w .....Drlg. 4,144 ft.

GREER COUNTY

I. T. I. O. and others' No. 1 fee, C SW NE Sec. 17-6-24w .....Drlg. 1,205 ft.
S. M. Stauffer's No. 1 Castleman, SW NE Sec. 8-4-26w..Rig.

HARMON COUNTY

I. T. I. O. Co.'s No. 1 fee, C SW SE Sec. 17-5-24w..Rig.



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EMCO—*Wherever you go*

EMCO #0 CAST IRON DRY GAS METER

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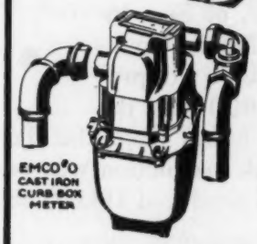
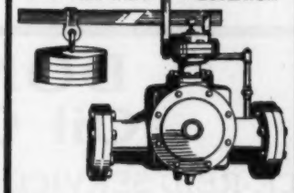


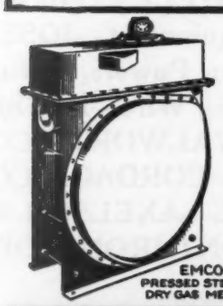
EMCO #0 CAST IRON CURB BOX METER

EMCO TIN METER



EMCO HIGH PRESSURE BALANCED VALVE REGULATOR

EMCO WATER HEATER AND GAS APPLIANCE REGULATOR



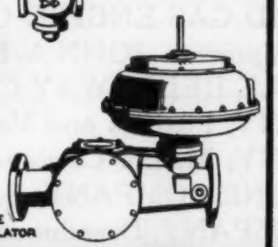
EMCO #5 PRESSED STEEL TYPE DRY GAS METER

WESTINGHOUSE FLUID POSITIVE GAS METER

EMCO LARGE CAPACITY CAST CASE DRY GAS METER WITH EMCO COMBINED RECORD GAUGE

EMCO ORIFICE GAS METER

EMCO DOMESTIC SERVICE REGULATOR



EMCO LOW PRESSURE BALANCED VALVE REGULATOR

PITTSBURGH EQUITABLE METER COMPANY

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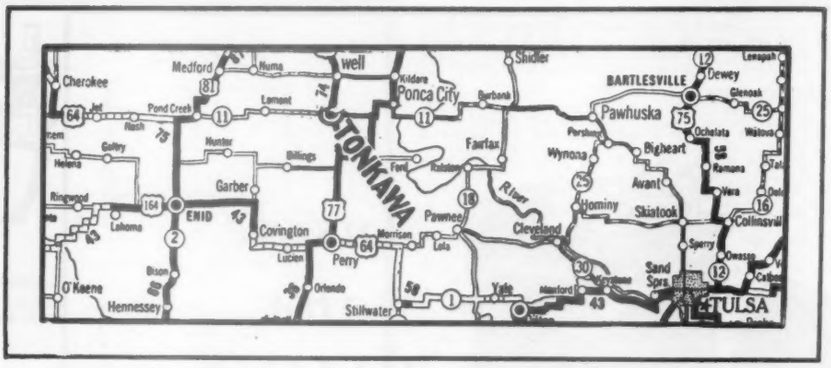

• TONKAWA •

One of the world's great oil fields. The discovery well was brought in on June 29, 1921, on the Wintermute farm in the N.E. cor. of Sec. 16-24-1W, Noble County, Okla., and produced 1000 bbls. the first 24 hours from the Tonkawa sand at 2660 feet. The peak production was reached in May, 1923, when the field produced 114,000 bbls. per day from 252 wells.

A deep test was made by deepening the No. 1 Endicott, S.W. cor. of Sec. 35-25-1W, Kay County, to 4060 feet, where the Wilcox sand was found. This test started at 55 bbls. the first hour. This was in April, 1924. The well was deepened to 4075 ft. during the same month, and made 2622 bbls. per day.

By this time the production from the upper sands had fallen to about 35,000 bbls. per day, but as a result of the deep drilling campaign, following the discovery of the Wilcox sand, the production reached 110,843 bbls. per day in September, 1924. 85,740 bbls. came from 31 wells in the Wilcox sand and 25,103 bbls. from 685 wells in the upper sands.

The Tonkawa field had produced up to April 1, 1929, 105,070,131 bbls. of high gravity oil from 3420 acres. The 1928 production was 4,878,203 blbs. Present daily production is 10,259 bbls.

Armor H. Crenshaw
STORE MANAGER AT TONKAWA

DONOVAN BOILER WORKS
Oil Country Boilers and Tanks

FRICK-REID SERVICE RUBBER BELTING, Our Own Specifications—JONES & LAUGHLIN STEEL CORPORATION, Tubular Goods, Seamless and Lapwelded—NATIONAL TRANSIT PUMP & MACHINE COMPANY, Pumps and Pipe Line Equipment—WM. POWELL COMPANY, Valves for the Oil Industry—J. P. RATIGAN, "Sure Grip" Line of Pumping Equipment—JOSEPH REID GAS ENGINE COMPANY, Two and Four Cycle Gas Engines, Pumping Powers, Refinery Equipment—JOHN A. ROEBLING'S SONS COMPANY, Wire Lines and Welding Wire—ROSSENDALE-REDDAWAY COMPANY, "Camel Hair" and canvas stitched Belting—WALWORTH COMPANY, Fittings and Valves for all branches of the Oil Industry—WHITLOCK CORDAGE COMPANY, Manila Cordages, including Drilling Cables, Bull Ropes, Cat Lines, Etc.—AXELSON MACHINE COMPANY, Sucker Rods, Pull Rods, Working Barrels, etc.—BEAUMONT IRON WORKS COMPANY, Dreadnaught Rotary Drilling and Pumping Equipment.

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SUPPLY CORPORATION

COVERS THE FIELD WITH WELL MANAGED STORES FROM THE ROCKY MOUNTAINS TO THE ATLANTIC COAST

Pittsburgh ..... Tulsa

HARPER COUNTY

Hoffer Oil Co.'s No. 1 Cooper, NW cor. SE SE Sec. 12-25-22w ..... Shut down 4,130 ft.

HASKELL COUNTY

Marion Oil's No. 1 Sanders, NW NE SW Sec. 10-9-18e. Shut down 2,387 ft.
Sanboise Gas' No. 1 Unknown, SW NW SE Sec. 32-9-21e. Shut down 2,100 ft.

HUGHES COUNTY

Whitney et al's No. 1 Moore, SE SW Sec. 17-5-9 ..... Drlg. 3,830 ft.
McGee Co.'s No. 1 fee, SE cor. Sec. 25-8-11e ..... Drlg. 125 ft.
The Texas Company's No. 1 Bryan, SE NE SW Sec. 9-6-8e ..... Drlg. 1,800 ft.

JACKSON COUNTY

Altus Oil Co.'s No. 1 Northington, NE cor. NE Sec. 4-1-20w ..... Shut down 2,020 ft.

KINGFISHER COUNTY

McKenna & Crawford's No. 1 Sturgeon, NE cor. SW Sec. 27-16-6w ..... Shut down 4,895 ft.

KIOWA COUNTY

S. H. Christian's No. 1 Stone, SE cor. Sec. 18-7-15w.. Rig on ground.
C. B. Cloyes' No. 1 Brazill, SW cor. NE Sec. 34-7-17w.. Plugging back to 918 ft:; shot 908-18 ft.
Merrick Oil Co.'s No. 1 Kelly, NW cor. SE Sec. 20-7-17w.. Shut down 1,035 ft.
McWharter and others' No. 1 Sherwood, CWL NW NE Sec. 2-5-17w ..... Shut down 570 ft.

LATTIMER COUNTY

Limestone O. & G. Co.'s No. 1 Shaw, NW cor. NE NW Sec. 23-5-18e ..... Rig on ground.
Limestone Oil & Gas Co.'s No. 1 McMurray, SW cor. SW Sec. 15-5-18 ..... Drlg. 3,522 ft.

LINCOLN COUNTY

Phillips Pet. Co.'s No. 1 Stephens, SE cor. NW Sec. 29-12-3 ..... Rig.
Morgan & Flynn's No. 1 Finlay, SW cor. SW Sec. 19-16-6 ..... Drlg. 1,158 ft.
Wheeler & Mote's No. 1 Kemmer, NW cor. NE SW Sec. 2-16-5 ..... Drlg. 3,800 ft.; water 4,098-4,124 ft.; hole full water; abandoned.

LOGAN COUNTY

Haley & Smith's No. 1 Guier, SE cor. SW Sec. 33-18-3w.. Cleaning out 5-in. csg. 3,970 ft.

McCLAIN COUNTY

Tidal Oil Co.'s No. 1 Davis, C SE SE Sec. 31-5-2e.. Water 4,284-90 ft.; shut down.

McINTOSH COUNTY

Spring Valley Oil Co.'s No. 1 Carr, SE cor. NE NW Sec. 16-10-13e ..... Drlg. 250 ft.
Patterson and others' No. 1 Smith, SW cor. NW SE Sec. 33-9-16 ..... Drlg. 5,496 ft.
Wolfe and others' No. 1 Unknown, NW cor. SE Sec. 15-12-18 ..... Rig on ground.

MAJOR COUNTY

Randau & Mooney's No. 1 Parker, SE cor. NE NW Sec. 4-23-16w ..... Show oil 1,235-40 ft.
Earl and others' No. 1 Turner, C NE NE Sec. 23-20-14w.. Rig.
Wilson and others' No. 1 Unknown, NE cor. NE Sec. 4-23-16w ..... Shut down 510 ft.

MUSKOGEE COUNTY

Cooper-Badgett's No. 1 Young, NW NE NE Sec. 7-12-20e.. Shut down 50 ft.
Tulkogee Oil Co.'s No. 1 Thompson, NW NE Sec. 31-15-20e ..... Machine.
Slusher's No. 1 Barnes, NE cor. Sec. 22-13-19e ..... Machine.
J. L. Slusher's No. 1 Nave, NE cor. SW NW Sec. 20-15-20 ..... Shut down 775 ft.

OKFUSKEE COUNTY

Superior and others' No. 1 Carolina, SE cor. Sec. 6-11-7e ..... Location.
T. B. Slick Inc.'s No. 1 Berry, SE cor. NE SE Sec. 21-11-7 ..... Water 4,718-23 ft.; hole full water, shut down.
Erwin and others' No. 1 Patterson, NW cor. SE Sec. 15-13-9 ..... Abandoned.
Prairie O. & G. Co.'s No. 1 Palmer, NW cor. NW NE Sec. 2-11-9 ..... Drlg. 3,796 ft.

OKLAHOMA COUNTY

Mid-Kansas' No. 1 Trosper, NE NW Sec. 19-12-1w.. Drlg. 2,400 ft.
Slick & Bailey's No. 1 Koester, C SE NE Sec. 18-13-3w.. Shut down 5,130 ft.
Cromwell & Franklin's No. 1 Thompson, SW cor. NE NE Sec. 15-12-3w ..... Granite 7,167-7,180 ft.; fishing.
Hall & Briscoe's No. 1 Holmes, NE cor. SW SE Sec. 10-11-3w ..... Shut down 4,750 ft.

PITTSBURG COUNTY

Kerr & Koy's No. 1 Hall, C NW NW Sec. 32-4-12.. Shut down 1,800 ft.

PONTOTOC COUNTY

Amerada Pet.'s No. 1 Gray, NE SW Sec. 25-5-4e ..... Location.

ROGER MILLS COUNTY

Bucy & Stone's No. 1 William, C SW Sec. 23-12-24w.. Location.
L. C. Hivick's No. 1 Davis, C NW NE Sec. 4-11-26w.. Shut down 725 ft.

SEMINOLE COUNTY

Indian Territory Illuminating Oil Co.'s No. 1 Peterson, SE SW NW Sec. 24-7-8e ..... Drlg. 4,445 ft.
Indian Territory Illuminating Oil Co.'s No. 1 Factor, SW NE SE Sec. 3-5-7e ..... Drlg. 2,560 ft.
Continental Oil Co.'s No. 1 Proctor, SE cor. NE NE Sec. 5-8-8e ..... Drlg. 3,258 ft.
McCulloch Oil Co.'s No. 1 McGilbray, SW cor. SW NE Sec. 4-8-8 ..... Drlg. Simpson 4,120 ft.
McCulloch Oil Co.'s No. 1 Powell, NW cor. NW Sec. 11-6-5 ..... Drlg. 2,850 ft.
Magnolia Pet. Co.'s No. 1 Harjo, NE cor. SE Sec. 34-6-7.. Drlg. 4,495 ft.
Prairie O. & G. Co. and others' No. 1 Davis, NE cor. NE Sec. 26-6-6 ..... Drlg. 4,762 ft.

SEQUOYAH COUNTY

Hunt and others' No. 1 Unknown, SE cor. NW SW Sec. 12-12-23 ..... Shut down 1,105 ft.
Buffington and others' No. 1 Melcher, C SW NW Sec. 31-12-24 ..... Shut down 3,000 ft.

WOODS COUNTY

E. K. Miller's No. 1 Copenhavers, NW cor. NW Sec. 18-24-13w ..... Rigged up and shut down.
Gypsy-Prairie and others' No. 1 Thompson, SE cor. SW Sec. 10-25-15w ..... Drlg. 5,075 ft.
Sinclair Oil & Gas Co.'s No. 1 Showalter, C SW SW Sec. 32-27-16w ..... Shut down 1,470 ft.

WOODWARD COUNTY

Farrond et al's No. 1 Unknown, SE cor. SW SE Sec. 22-23-17w ..... Drlg. 1,160 ft.
Sharon Oil Co.'s No. 1 Elmore, SW cor. SW Sec. 25-21-21w ..... Rig blown down 3,025 ft.; abandoned.
Prairie Oil & Gas Co. and others' No. 1 James, NE cor. NW Sec. 23-23-17w ..... Drlg. 3,550 ft.
Billy's Oil Co.'s No. 1 Watt, C SE Sec. 9-23-20w.. Shut down 3,612 ft.
Burgoyne Brothers' No. 1 Merkins, SW cor. SE NE Sec. 15-21-19w ..... Shut down 1,910 ft.
Wilson and others' No. 1 Unknown, NE cor. SW Sec. 4-23-16w ..... Shut down 510 ft.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Wapanucka Oil Co.'s No. 1 Banks, CWL SE SE Sec. 28-2s-9 ..... Shut down 1,530 ft.

BRYAN COUNTY

Yale Oil Syndicate's No. 1 Craige, C NW NE Sec. 36-9s-9e ..... Fishing bit 1,390 ft.

CARTER COUNTY

L. J. Woodruff's No. 1 Zellnear, NE cor. NW SE Sec. 34-4s-1 ..... Machine.
Avon-Dickey's No. 1 Anderson, NE cor. SE NE SE Sec. 33-4s-2 ..... Shut down 420 ft.

CHOCTAW COUNTY

Choctaw Petroleum Co.'s No. 1 Wilson, SW cor. SW Sec. 15-6-19 ..... Shut down 1,346 ft.

COOK'S GRAPHITIC IRON PISTON RINGS

Why are an ever-increasing number of the leading operators of Gas and Oil Engines and Gas Compressors adopting COOK'S GRAPHITIC IRON PISTON RINGS?

Because They Know That

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— Scoring of cylinders is not possible even though lubrication temporarily fails.

— The free graphite in COOK'S rings absorbs the lubricant and itself is a lubricant.

— The absence of cylinder wear and piston ring renewal increases the efficiency of the plant.

— By actual experience longer piston ring service and improved results are obtained per dollar invested.

They realize that COOK'S Piston Ring service is complete, with agents in the field, carrying stock for standard engines, and personally expediting delivery of all orders—and that COOK'S GRAPHITIC IRON is available in rings of most every type including eccentric and concentric snap rings, Dunbar and other special sealing rings, segmental rings, etc.

They know the Cook Company closely control the ring material in their own foundry and specialize in the manufacture of industrial rings only with facilities arranged for quick shipments, regardless of the number of rings ordered.

They know the Cook Ring was the original and only "GRAPHITIC IRON" Ring; that it is different in physical structure, and for severe service it has no equal.

And finally, these operators know all these statements are true for in most every case they conducted comparative tests before adopting the ring generally.

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South Philadelphia Works Philadelphia, Pa.
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COTTON COUNTY

Birdwell et al's No. 1 Means, SE SW SW Sec. 24-1-11w..Drlg. 1,265 ft.
Kirbow and others' No. 1 Brown, NE SW Sec. 35-3-12w..Shut down 1,170 ft.
Perkins & Callum's No. 1 Tucker, NW NE Sec. 11-3-10w .....Shut down 2,513 ft.
Pewlin Pet. Co.'s No. 1 King, SW SE Sec. 22-3-9w..Drlg. 1,250 ft.
Amerada Pet. Corp.'s No. 1 Dulaney, SE cor. NW NW Sec. 31-4-9w .....Drlg. 1,787 ft.
Pierce & Brown's No. 1 Hertzler, NW cor. NW Sec. 31-2-12w .....Abandoned 2,716 ft.
White and others' No. 1 Woodruff, NW NE SE Sec. 18-3-11w .....Shut down 2,500 ft.

JEFFERSON COUNTY

Danciger et al's No. 1 Dilley, SE NW (O.D.D.) Sec. 11-5-7w .....Rig.
Wirt Franklin Pet.'s No. 1 Sanders, SE NW Sec. 10-4-8w..Rig.
Alter and others' No. 1 Johnson, SW cor. NW Sec. 14-4-7..Spudded and shut down 380 ft.
Pierce & Brown's No. 1 School Land, SE NE NW Sec. 16-5-8w .....Location.

JOHNSTON COUNTY

Humble O. & R. Co.'s No. 1 Colbert, Sec. 6-4s-4e, SE SW..Drlg. 1,400 ft.
Smith & Knisely's No. 1 Lane, E half Sec. 29-1-7..Shut down 1,900 ft.
Bush Creek Oil Co.'s No. 1 Kirby, SE cor. NE NW Sec. 9-4-7 .....Shut down for casing 405 ft.

MARSHALL COUNTY

Neif and others' No. 1 Strothers, C SW NE NE .....Drlg. 755 ft.

MURRAY COUNTY

Bison Oil Co.'s No. 1 Labor, NW cor. Sec. 17-1-2e..500,000 ft. gas and show of oil 2,185-2,228 ft.; drlg. 2,270 ft.

STEPHENS COUNTY

Wirt Franklin Pet.'s No. 1 Spain, SW SE NW Sec. 9-2-5w .....Location.
Heydrick Drlg. Co.'s No. 1 Thompson, CWL SE NE Sec. 1-1-8w .....Drlg. 1,345 ft.
Haynes et al's No. 1 Woolsey, SE cor. SW NE Sec. 4-3S-6w .....Location.
Ellis Drilling Co.'s No. 1 Yates, SW NE Sec. 4-3-7w..Spudding.
Smythe and others' No. 1 Shaw, NE cor. NE Sec. 27-2-8w .....Rig.

TILLMAN COUNTY

Long & Taylor's No. 1 Grooms, SE NW Sec. 10-1-17w ....Shut down 726 ft.
Cochran & Ridgway's No. 1 Barnes, C NW NE.....Cellar.
Burt Lambert and others' No. 1 Zivlig, C NW Sec. 25-1-18w .....Drlg. 2,565 ft.
Landfair and others' No. 1 Smith, SE SW SE Sec. 6-2s-15w .....Shut down 2,535 ft.
Allen & Treadwell's No. 1 Howell, NW cor. SE Sec. 13-1-17w .....Shut down 785 ft.

OKLAHOMA PANHANDLE

Magnolia Pet. Co.'s No. 1 School, C SE NE Sec. 32-5-5..Drlg. 2,315 ft.
Skaer's No. 1 Hitch, NW cor. Sec. 25-1-15e .....Drlg. 100 ft.
Three Way Oil Co.'s No. 1 Cane, SW NW Sec. 11-1-18e..Shut down 2,350 ft.

KENTUCKY-TENNESSEE

(Continued from Page 75)

rant the belief the lease will be further developed. If it proves what it is said to be a new area has been found for development work during the spring and summer. Its actual value as a producer is yet undecided until the well is shot and cleaned out.

Lands Large Oil Lease

Paul Dahlgren of Oklahoma, who recently procured a lease, through the courts for drilling on the 1,300-acre farm of the late Mrs. Jennie Wilson, on which the Ben Harber Hills are located, completed a contract with R. W. Mahan of Owensboro to drill a test on the acreage, offsetting the George H. Rudy and Ben F. Medley farms on the south and west. This well will be about 4 miles northwest of Owensboro and the contract calls for a test to 1,600 feet or deeper if structures point to the probability of oil or gas being found at a lower depth. It is probable the test will be made as deep as 2,000 feet.

Week's Work

A summary of the week's work in the Kentucky fields show 24 completions, 15 producers with an initial production of 1,189 bbls., 8 dry holes and 1 gas well.

County—	Comp.	Oil wells	Prod.	Dry	Gas
Ohio	11	8	973	2	1
Daviess	8	6	215	2	0
Allen	2	1	1	1	0
Hancock	2	0	0	2	0
Warren	1	0	0	1	0
Total	24	15	1,189	8	1

Ohio County Wells

In the Bartlett Pool, near Taffy, in northern Ohio County, the big producer drilled by the Ohio Oil Co. in No. 4 on the James A. Kirk farm, adjoining the productive lease of Hupp, Duff and others on the Ellis Bartlett, surprised the entire country around with its heavy flow from a depth of 580 feet, putting out without a shot in its natural state 740 bbls. of fine gravity crude in 24 hours and since then flowed at the rate of 600 bbls., filling all available storage. The line not being large enough to handle the production of this well and others on adjoining leases compelled the Illinois Pipe Line Co. to lay an additional line.

The Ohio Oil Co. also made a good find in its No. 5 on the W. B. Kelley 105 acres, in the Whittaker Pool, same county, which showed an initial of 140 bbls. In this well a string of 570 feet of casing was set, sand found at from 580 to 607 feet, total depth of hole 607 feet, and shot with 100 quarts. Same company found a dry hole on the G. A. Holland 175 acres in the northern part of the county. The duster is 1,400 feet from the north line and 200 feet from the east line of the lease.

James C. Ellis made another good strike in the eastern portion of the Ambrose-Weller Pool, as his No. 10 on the Brownlee Gossett farm is said to be better than 100 bbls. and one of the best of the late completions in that area which is close to the big Hamilton farm.

The National Deposit Bank's No. 5 on the Mary J. Brown heirs farm, in the Deanfield area, produced an initial of 50 bbls. A string of 435 feet of casing was set, sand at from 450 to 469 feet, total depth 470 feet.

Maple, Lyle and others' No. 1 on the T. L. Hickey, in the Bells Run area, northwest of the Ambrose Pool, is credited with 25 bbls. initial.

Sirman's Co. drilled in No. 15 on the Nancy Farmer lease, in the vicinity of Friendship Church, getting what looks like a 30-bbl. producer.

C. Claypool and others' No. 9 on the J. L. and J. H. Ralph 125 acres, near Adaburg, produced 24 bbls. initial. In this hole a string of 433 feet of casing was set, sand at 449 to 467 feet, total depth 469 feet.

Jesse E. Hare's second test on the Jesse L. Ralph 42 acres, also near Adaburg, produced but 4 bbls., at a total depth of 500 feet. A string of 455 feet of casing was set and sand found from 478 to 490 feet.

Mable E. Daugherty and others' second test in the southeast corner of the F. M. Burdette 204 acres, east of Deanfield, developed into a dry hole.

The Armistead Oil Co.'s second test on the P. R. Kelley, in the Friendship Church area is estimated good for 500,000 feet of gas.

Daviess County

In the Utica Field of Daviess County, the Creek Drilling Co.'s No. 6 on the J. F. Leet farm is rated at 40 bbls. initial and the same company's No. 4 James E. Brown farm, same field, showing for 30 bbls. This company's No. 1, a wildcat on the Hamilton farm, in the western part of the county and to the west of St. Joseph, which went to a total depth of 2,500 feet, according to report, is good for 75 bbls. initial.

The Whitmer Oil & Gas Co.'s test on the Joe Branham farm, between Pleas-

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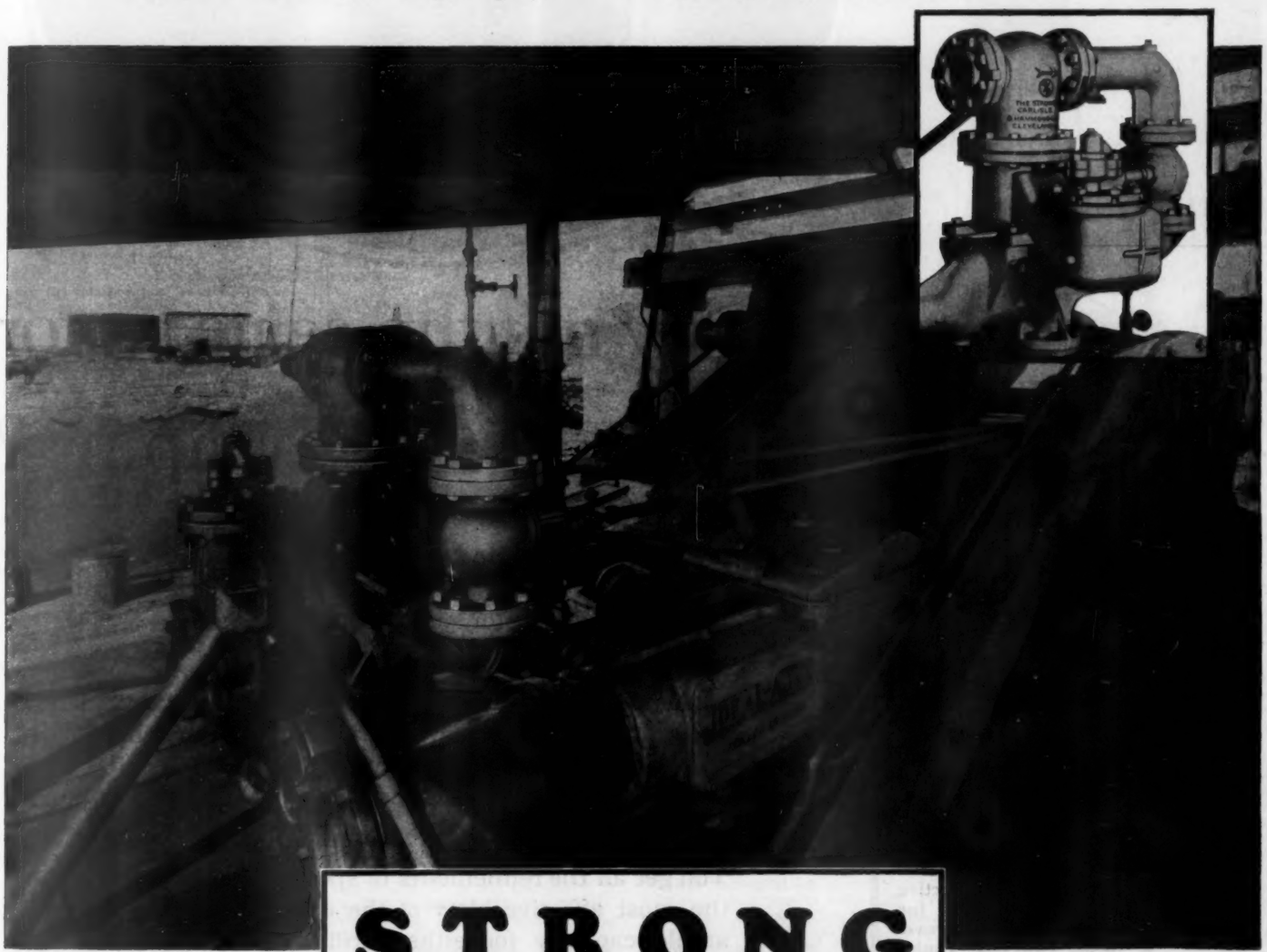

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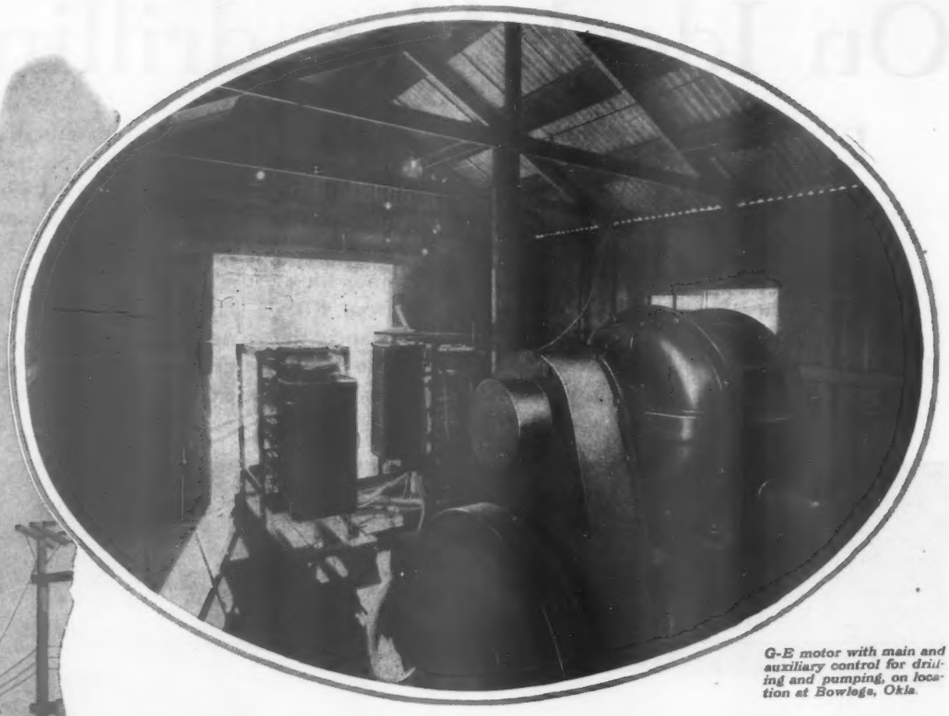

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That's what General Electric's two-speed pumping motor permits with main and auxiliary control. Install the right size motor and control; add auxiliary control for close drilling adjustments; and when the well is brought in, just leave the motor and main control for pumping. The auxiliary control goes to another location.

You get all the refinements of speed control necessary for the most effective blow of the drilling bit, and there is ample capacity for either drilling or pumping. This equipment will drill from the grass roots down, and is particularly well adapted to go into the sand on a rotary-drilled well.

Where conditions favor a separate drilling motor, General Electric offers the standard 75-hp. cable tool equipment which has been used successfully for many years.

General Electric supplies complete electric equipment to the oil industry. With warehouse facilities close to your operations, G.E. readily furnishes motors, controllers, transformers, arresters and other protective devices, capacitors for power-factor improvement, switching equipment, etc.

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200-243A

GENERAL ELECTRIC

GENERAL ELECTRIC COMPANY, SCHENECTADY, N.Y., SALES OFFICES IN PRINCIPAL CITIES

ant Ridge and Hewlett's Store, in the eastern portion of Daviess County, had an initial production close around 35 bbls.

James C. Ellis and others' No. 2 on the Hansford heirs, in the Utica area, is rated at 20 bbls. initial.

McKenry and others have what shows around 15 bbls. in a second test on the Hick Litsey lease, north of Whitesville. Pratt and others report a dry hole in the northeast corner of the M. G. Huff 119 acres, in the Utica area.

In the Gainesville Field in the northeastern part of Allen County, the Snowden-McSweeney Co.'s No. 23 on the W. B. Tabor, pumped but 1 bbl. at a depth of 426 feet. The Allen Oil Corp.'s No. 10 on the A. Welch No. 2 farm, same area, was dry at 237 feet.

In Warren County, 7 miles northwest of Bowling Green, William Gittings' No. 7 on the Tom McGinnis farm was a dry hole in the deep sand at 1,181 feet.

In the Pellville Field of Hancock County, McMahan & Combs got a dry hole in No. 4 on the Hancock Development Co.'s 3,000-acre block, and No. 5 has been started. H. A. Henry's No. 3 well, 200 feet from the north line and 600 feet from the west line of the W. F. Payne 30 acres, same field, is reported as dry.

OKLAHOMA FIELDS

(Continued from Page 50)

into a large well, the crew lowered the 1,500 feet of fluid in the hole and it filled back 50 feet. The showing of oil was in the Simpson lime at 4,161-67 feet. Wilcox sand was topped at 4,303 feet and after drilling to 4,312 feet and still dry, a fishing job developed.

Fern Oil & Gas Co.'s No. 1 Holmes, CEL SE SE, Section 24-11-10, Okfuskee County, on a production test, gauged 750 bbls. the first day and 650 bbls. the second day, and then quit flowing. The company is lowering the 10-inch casing to further test out the sand at 1,852 feet and also the total depth.

Lease Has Many Owners

Many guesses have been made as to the division of ownership in the well known as No. 1 Kelly, SE NE NE, Section 2-7-4, Pottawatomie County. The following is said to be the correct ownership divided into 256 parts: Shaffer Oil & Refining Co., 64; R. A. Irwin, 42; W. J. Martin. 16; Keister-Manning, Inc., 32; W. E. Disney, 3; John Wheeler, 3; C. H. Seger, 32; McGraw Oil Co., 16, and the Sinclair Oil & Gas Co., 48; total 256. The well is on a 40-acre lease, and opened a new productive area. It had an initial production of 2,460 bbls. from the Hunton lime.

Houston Oil Co.'s No. 1 James, NE cor. NW SW, Section 17-7-4, Pottawatomie County, an extension to the northeast of the Pearson Pool, made a flow of 120 bbls. in 30 minutes from the Viola lime. It swabbed and flowed 250 bbls. in 24 hours, and is drilling in the Simpson lime at 4,167 feet.

A well that is being watched and may prove to be a pool opener is the Independent Oil & Gas Co.'s No. 1 Rhodd, in the NW cor., Section 16-7-4, Pottawatomie County. It is being deepened from the Hunton lime to the Wilcox sand. The top of the Viola was at 3,925 feet; top of the Hunton at 3,625 feet; top of the Simpson 4,012 feet. It has been swabbing 50 bbls. a day from the Hunton and the same amount from the Viola. The Wilcox sand is expected in the next few days.

Carter Oil Co. and others' No. 1 Skiff, Community Pool, SE cor. NE, Section 10-9-6, Seminole County, flowed 110 bbls. from the Hunton lime and is drilling deeper at 4,005 feet. This well offsets the big Hunton lime well recently completed by the same interests with an initial production of 4,100 bbls.

The same interests are drilling No. 1 Slick, NE cor. NW SW, Section 11-9-6, Seminole County. It flowed 210 bbls. from the Hunton lime and is now drilling deeper at 4,035 feet in Sylvan shale.

East Little River Pool

One of the best leases in the entire Seminole area is the Mid-Continent Petroleum Corp.'s Smith lease in the W half NE, Section 5-7-7, Seminole County. On a gauge taken May 15 the lease produced 8,575 bbls. of pipe line oil from five wells. It is the largest production reported on that day from any lease in the Seminole area.

Producers & Refiners Corp. has completed a good well in No. 1 Thomas, NE cor. SE NW, Section 5-7-7, Seminole County. It has been drilled to 4 369 feet in the Wilcox sand and swabbed 470 bbls. in one day's gauge.

Carter County

Harris, McNeil and Atlantic Oil Producing Co. is erecting the rig for No. 4 Easton, NW cor. NE SE, Section 19-1s-3w. Magnolia Petroleum Corp. is building the rig for No. 3 Johnson, NE cor. SE, Section 32-1s-3w. The rig is under construction for No. 8 E. Hefner, SW cor. NW SW, Section 33-1s-3w.

Creek County

J. F. Wood Oil Co. has a machine on the location for No. 1 Langley, NE cor. SE, Section 19-19-9. William Sherry and Carter Oil Co.'s No. 3 Halsey, C NW SE, Section 28-19-9, is a machine rigging up. Mid-Continent Petroleum Corp.'s No. 5 Renfrow, SW cor. SE SE, Section 27-17-7, is preparing to deepen from 1,575 feet. Carter Oil Co. has the rig up for No. 8 Durant, SW cor. SE NE NE, Section 18-16-9. Selby Oil & Gas Co. has built the rig for No. 5 Durant, NW cor. NE SE NE, Section 18-16 9. William Sherry and Carter Oil Co.'s No. 2 Halsey, NW cor. NE SE, Section 28-19-9, has been completed for 1,500,000 feet of gas in sand at 2,229-40 feet.

Cotton County

Shasta Oil Co.'s No. 2 Chalmers, SW cor. NW NW SE, Section 2-2s-10w, is drilling at 1,170 feet. Leath and Denver & Wichita Falls Pipe Line Co. made location for No. 1 Hundley, SE cor. SW, Section 24-2s-9w. Pierce & Brown's No. 1 Heitzler, NW cor. Section 31-2s-12w, has been abandoned at 2,716 feet. Heydrick and others' No. 1 White, NW cor. NE SE, Section 18-3s-11w, is a dry hole at 2,502 feet.

Garvin County

Tidal Oil Co. and others made location for No. 1 Halverton, C SW NE, Section 8-4-2.

Greer County

Helmerich & Payne are moving in cable tools for No. 1 Johnson, C NW NW, Section 23-6-24w.

Hughes County

Harris & Hayes Oil Co. has the rig up for No. 1 Grayson, C SW SW, Section 18-9-10. Magnolia Petroleum Co. made location for No. 1 Witty, SW cor. NW NW, Section 22-7-8.

Jefferson County

Roy Johnson and Wirt Franklin Petroleum Corp.'s No. 1 Sanders, SE cor. NW, Section 10-4s-8w, is a rig with tools in. H. W. Lee's No. 1 Hotubbi, SE cor. NW, Section 11-5s-7w, is preparing to deepen from 2,513 feet. O. V. Beck's No. 3 Seay, SW cor. SE SW SE, Section 34-6s-5w, is pumping 48 bbls. from sand at 1,232-42 feet.

Lincoln County

The Prairie Oil & Gas Co. and T. B. Slick's No. 1 Kimball, SE cor. SE SW, Section 5-14-4, has been abandoned at 5,765 feet.

Logan County

Shell Petroleum Corp.'s No. 3 Rouse "B," SE cor. NE NE, Section 19-19-4w, Roxana Pool, made 2,237 bbls. from sand at 6,081-87 feet.

McClain County

Tidal Oil Co.'s No. 1 Halverton, C SE SE, Section 31-5-2, is dry and abandoned at 4,290 feet.

Muskogee County

J. B. King's No. 1 Humphrey, CSL SW NW, Section 5-13-19, is spudding.

Latimer County

Limestone Oil & Gas Co. has the rig on the ground for No 1 Shaw, NW cor. NE NW, Section 23-5-18. Le Flore County Gas & Electric Co.'s No. 1 Martindale, SW cor. NE NE, Section 11-6-22, made 7,896,000 feet of gas at 1,790 feet.

Okfuskee County

C. M. Sheldon Oil Co. has the rig up for No. 1 Wilson, NW cor. SW, Section 22-12-11. Josey Oil Co.'s No. 1 Stubelfield, SW cor. NE NW, Section 33-12-11, is drilling deeper in Wilcox sand at 3,598 feet.

C. L. McMahon's No. 3 Fixico, SE cor. NW SE, Section 29-12-10, made 65 bbls from sands at 2,948-80 feet and 3,116-64 feet. Josey Oil Co.'s No. 21 McCoy, SW cor. SE NW, Section 33-12-11, swabbed 125 bb's. from sand at 3,632-69 feet. O. M. Irelan and others' No. 1 Holmes, SE cor. NE NW, Section 32-11-11, made 2,750,000 feet of gas after drilling to 3,044 feet and plugging back to 3,036 feet. DeWitt & Baldridge and others' No. 1 Barnett, NW cor. NE NE, Section 5-10-11, is dry and abandoned at 3,996 feet. W. L. Umburn's No. 2 Hildebrandt, C NE SE, Section 12-10-11, has been abandoned at 2,137 feet.

Oklahoma County

Coline Oil Co's No. 2 Olds, C NE NW, Section 24-11-3w, Oklahoma City Pool, has been shut in for 65,000,000 feet of gas in sand at 4,846 55 feet.

Okmulgee County

W. B. Pine has the rig up for No. 1 Minugh, CSL SW NW, Section 18-15-13. Jackson & Wise's No. 9 Adams, SW cor. Section 3-15-11, made 20 bbls. from sand at 2,183-2,203 feet.

Osage County

Phillips Petroleum Co. has a machine on the location for No. 2, NW cor. NE NW NW, Section 28-25-12. Union Oil & Mining Co. made location for No. 1, SE cor. NW, Section 32-23-10. Continental Oil Co. and others' No. 2, SW cor. SE, Section 31-24-9, made 175-bbl. well in Bartlesville sand at 2,090-2,157 feet. A. G. Oliphant's No. 2, NE cor. NW NE, Section 6-23-9, swabbed 15 bbls. from Bartlesville sand at 2,247 97 feet. Indian Territory Illuminating Oil Co.'s No. 2, NE cor. SW SW, Section 28-23-9, has been completed for 250,000 feet of gas in sand at 338 61 feet.

Pawnee County

Devonian Oil Co.'s No. 2 Copeland, NW cor. SE SW, Section 26-20-9, is a machine rigging up. Hay and others' No. 2 Copeland is a machine rigging up. Roy Sears and others' No. 3 Wiggs, SW cor. NE NW, Section 35-20-9, made 135 bbls. from Bartlesville sand at 2,014-48 feet. Swift & Rush's No. 2 Smelzer, NW cor. SE NW, Section 35-20-9, made 140 bbls. from sand at 1,985-2,018 feet. Nadine Oil Co.'s No. 5 Martin, NE cor. NW NE, Section 7-20-8, was completed for 1,500,000 feet of gas in sand at 1,965-91 feet.

Payne County

Magnolia Petroleum Co. has the rig on the ground for No. 2 Jennings, NW cor. SW, Section 10-18-5. The Texas Company's No 2 Cardin, SW cor. SE, Section 32-18-5, pumped 40 bbls. from sand at 3,642-69 feet.

Pontotoc County

American Oil & Refining Co. made location for No. 2 Robertson, SW cor. NE SW, Section 19-5-5. Empire Oil & Refining Co. has the rig up for No. 1 Norris, SW cor. SE NW, Section 19-5-5. Independent Oil & Gas Co. has the cellar dug for No. 1 Davis, NE cor. NW SW, Section 19-5-5.

LaSalle Oil Co.'s No. 3 Mole, SE cor. NE NE, Section 31-5-5, is pumping 125 bbls. from Viola lime at 2,438-2,550 feet. Independent Oil & Gas Co.'s No. 1 Chism, SE cor. NW SE, Section 20-5-7, is dry and abandoned at 4,143 feet.

Pottawatomie County

Superior Oil Corp. made location for No. 1 Songster, NW cor. Section 8-9-5, Earlsboro Pool. Pure Oil Co. made location for No. 1 Kelly, NE cor. SE NW, Section 19-9-5. Indian Territory Illuminating Oil Co. moved the rig in for No. 1 Shobe, SE cor. Section 35-8-4. Magnolia Petroleum Co. has the rig on the ground for No. 2 M. Harden, NW cor. Section 12-7-4, St. Louis Pool. Independent Oil & Gas Co. and Darby Petroleum Co.'s No. 1 Pappan, NE cor. SE SE, Section 16-7-4, is a cellar.

Martin & Irwin and others' No. 1 Kelly, SE cor. NE NE, Section 2-7-4, north of St. Louis Pool, flowed 2,130 bbls. from Hunton lime at 3,750-77 feet. Magnolia Petroleum Co.'s No. 1 Singletary, SE cor. SW, Section 15-7-4, flowed 370 bbls. from Hunton lime at 3,630-3,712 feet. Westheimer & Daube's No. 2 Garret, SE cor. SW, Secion 23-7-4, swabbed 80 bbls. from Simpson sand at 4 298-4,301 feet. Phillips Petroleum Co.'s No. 3 Wallace, NE cor. NW SW, Section 17-8-5, is dry and abandoned at 3,915 feet.

Phillips Petroleum Co.'s No. 4 Wallace, NW cor. NE SW, Section 17-8-5, is dry and abandoned at 4,080 feet. Magnolia Petroleum Co.'s No. 4 Brandenburg, NE cor. SW NW, Section 18-7-5, has been completed for 48 bbls. in Simpson sand 4,020-4,160 feet after plugging back from 4,177 feet in Wilcox sand. The Prairie Oil & Gas Co. and T. B. Slick's No. 4 Davis, SW cor. SW NE, Section 18-7-5, has been abandoned at 4 268 feet. No. 1 Rhodd, NW cor. SE, Section 18-7-5, is dry and abandoned at 4,338 feet in Wilcox sand. No. 1 Genin, SE cor. NW SE, Section 18-7-5, has been abandoned at 3 912 feet. Magnolia Petroleum Co.'s No. 5 Brandenburg, SE cor. SW NW, Section 18-7-5, made 150 bbls. from Simpson sand at 4,060-4,203 feet.

Sinclair Oil & Gas Co.'s No. 5 Nesbit, SW cor. SE NE NW, Section 18-7-5, drilled to 4,230 feet in Wilcox sand, plugged back to 4,050 feet in Simpson and swabbed 675 bbls. Mid-Continent Petroleum Corp.'s No. 4 Shelton, SE cor. NE, Section 18-8-5, Maud Pool, pumped 20 bbls. from Hunton lime 4,033 feet. Independent Oil & Gas Co's No. 1 Harding, SE cor. NW, Section 18-8-5, pumped 35 bbls. from Hunton lime at 4,190-4 216 feet after plugging back from 4,254 feet. The Prairie Oil & Gas Co. and T. B. Slick's No. 2 Fulton, NE cor. NE SE, Section 13-8-5, Mission Pool, is dry and abandoned at 4,323 feet in Wilcox sand.

Seminole County

Producers & Refiners Corp.'s No. 6 Foster, SE cor. SW NW, Section 33-8-8, is rigging up to deepen. Empire Oil & Refining Co. has the cellar dug for No 2 Charty, SW cor. SE NW, Section 24-7-6, Little River Pool. Location has also been made for No. 5 Cotcha, SE cor. NE, Section 27-7 6.

Sinclair Oil & Gas Co.'s No. 1 Alexander, SE cor. Section 36-10-5, made 1,350 bbls. from Wilcox sand at 4,330-43 feet. Gypsy Oil Co.'s No. 1 Lottie, SW cor. SE SW, Section 31-10-6, Earlsboro Pool, made 77 bbls. from Wilcox sand at 4 316-32 feet. Mid-Continent Petroleum Corp.'s No. 4 Nevins, SW cor. SE SE, Section 32-10-6, has been completed for 325 bbls. in Wilcox sand at 4,333-51 feet. Magnolia Petroleum Co.'s No. 3 Hyde, SW cor. SE NW, Section 13 9-5, is dry and abandoned at 4,364 feet. No. 1 fee, SW cor. NW NE, Section 11-8-5, drilled to 4,388 feet in Wilcox sand and plugged back to 4,164 feet and pumped 21 bbls. from Hunton lime.

The Prairie Oil & Gas Co.'s No. 2 Baker, SW cor. SE NE, Section 24-9-5, Earlsboro Pool, made 805 bbls. from Wilcox sand at 4,185-4,201 feet. No. 1 Billington, SW cor. SW NW, Section 11-8-5, Carr City Pool, flowed 2,255 bbls. from Misener sand at 4,049-67 feet. Tidal Oil Co.'s No. 3 Nellis, SE cor. NE SE, Section 12-8-5, Mission Pool, made 1 020 bbls. from Wilcox sand at 4,270-88 feet. Gypsy Oil Co.'s No. 1 Johnson, NE cor. NW SW, Section 15-8-5, is dry and abandoned at 4,263 feet.

Shell Petroleum Corp. and Marland Oil Co.'s No. 3 Herndon, SW cor. NW NE, Section 7-8-6, Mission Pool, made 393 bbls. in Wilcox sand at 4,379 95 feet. Shell Petroleum Corp. and Papoose Oil Co.'s No. 8 Maines, SW cor. Section 7-8-6, was completed for 361 bbls. in Wilcox sand at 4,239-46 feet. Minnehoma Oil Co.'s No. 3 Neal, SE cor. NW NW, Section 7-8-6, made 969 bbls. from Wilcox sand at 4,269-71 feet. Gypsy Oil Co.'s No. 6 Hardy, NE cor. SE NW, Section 7-8-6, flowed 400 bbls. from Wilcox sand at 4,245-59 feet.

W. B. Pine's No. 2 S. Micco, NE cor. NW, Section 8-8-6, is dry and abandoned at 4,369 feet. Empire Oil & Refining Co.'s No. 1 Cotcha, NE cor. SE NE, Section 27-7-6, Little River Pool, was completed for 392 bbls. in Gilcrease sand at 3,143-46 feet. Dillines and others' No. 1 Robertson, SW cor. SE SE, Section 30-7-6, is dry and abandoned at 1,300 feet. Mid-Continent Petroleum Corp.'s No. 15 Fleet, NW cor. SW SE,

Section 7-5-8, Allen Pool, flowed 825 bbls. from Wilcox sand at 4,135-40 feet.

Stephens County

Paul Trahan's No. 1 Gunn, SW cor. SE SE, Section 34-1s-9w, is drilling at 1,064 feet. Amerada Petroleum Corp. is erecting the rig for No. 5 Hansen, SE cor. NE SW, Section 12-1s-4w. Wirt Franklin Petroleum Corp. is erecting the rig for No. 9 Franklin, SE cor. NW NE, Section 24-1s-4w. No. 1 Spain, SW cor. SE NW, Section 9-2s-6w, is rigging up. Magnolia Petroleum Co.'s No. 10 Quackenbush, SW cor. SE, Section 8-2s-4w, is drilling at 1,310 feet.

Shell Petroleum Corp.'s No. 4 Cook "N," NW cor. NE SW, Section 30-1-8w, is pumping 38 bbls. from sand at 2,262-70 feet. Magnolia Petroleum Co.'s No. 23 Kagay, NE cor. NW NE SW, Section 34-1s-8w, is flowing 200 bbls. from sand at 1,853-62 feet. Magnolia Petroleum Co.'s No. 4 Marks, NE cor. SE, Section 13-2s-8w, was completed for 32 bbls. in sand at 1,423-39 feet.

Tillman County

Razor & Aikens' No. 1 Grooms, C NW, Section 10-1-17w, drilled to 480 feet and shut down.

Wagoner County

W. C. Newman's No. 2 Bruner, NW cor. SW, Section 18-17-17, has been completed for 3,500,000 feet of gas in sand at 1,068-85 feet.

PRODUCTION OF ST. LOUIS POOL

Production of St. Louis Pool by companies and leases for May 16 follows:

S.T.R.	Company, farm—	Wells	Prod.
16-7-4	Atlantic, Burke	1	735
30-7-5	Barnsdall, Stahl	3	809
25-7-4	Blackwell-Omar, Cherry	3	765
16-7-4	Darby, Youngblood	1	427
36-7-4	Empire, School Land	1	182
25-7-4	Gypsy, Bruno	4	175
25-7-4	Gypsy, Collins	4	390
26-7-4	Gypsy, Dodson	4	232
23-7-4	Gypsy, LeClair	4	3,352
26-7-4	Gypsy, Roseman	3	732
30-7-5	Gypsy, Stahl	8	3,527
14-7-4	Home Gas, Town Lot	1	385
30-7-5	Independent, Blandin	5	930
19-7-5	Independent, Youts	8	10,920
23-7-4	Indep.-Darby, Freid	3	320
23-7-4	Indep.-Darby, LeClair	1	80
	Indep.-Wes land, Rhodd	1	62
18-7-5	I.T.I.O.-Sinclair, Woodard	1	70
24-7-4	Inter-Ocean, Coley	1	25
23-7-4	Inter-Ocean, McGee	6	300
2-7-4	Irwin-Martin, Kelly	1	769
18-7-5	Magnolia, Brandenberg	5	2,109
26-7-4	Magnolia, Cherry-A	5	1,054
26-7-4	Magnolia, Cherry-B	3	219
20-7-5	Magnolia, G. W. Fyke	1	1,010
20-7-5	Magnol'a, G. W. Fyke-B	2	501
20-7-5	Magnolia, Tull Fyke-A	1	62
20-7-5	Magnolia, Tull Fyke-B	3	1,576
29-7-5	Magnolia, Tull Fyke-D	3	37
19-7-5	Magnolia, Hembree	4	1,522
31-7-5	Magnolia, Nicholas	2	70
7-7-5	Magnolia, Pugh	1	0
15-7-4	Magnolia, Singletary	1	41
15-7-4	Magnolia, J. M. Robbins	4	282
14-7-4	Magnolia, Barta	1	14
24-7-4	Magnolia, Mary Wilborn	2	0
24-7-4	Magnolia, S. A. Wilborn	5	564
20-7-5	Magnolia, Chas. Youts	4	590
19-7-5	Magnolia, C. A. Youts	4	583
20-7-5	Magnolia, H. E. Youts	7	7,153
25-7-4	McCullough-Blackwell, Bruno	5	1,110
25-7-4	McCullough-Mid-Cont., Smith	6	840
25-7-4	Mid-Kansas, Getzleman	4	1,445
30-7-5	Mid-Kansas, Lunay	3	530
16-7-4	Minnehoma, Sims	1	65
29-7-5	Packard Oil, Church	1	350
14&23-7-4	Panther, Town Lot	2	170
25-7-4	Phillips, Cherry	2	180
24-7-4	Phillips, Lydick	1	35
30-7-5	Phillips, Stahl	4	472
25-7-4	Prairie, Desmond	4	190
25-7-4	Prairie, Ellison	4	340
30-7-5	Prairie, Gammon	8	3,330
19-7-5	Prairie, Hembree	4	4,432
30-7-5	Prairie, Linn	4	1,020
7-7-5	Prairie, Pugh	1	22
18-7-5	Prairie, Ramsey	1	0
18-7-5	Prairie, Rhodd	1	70
29-7-5	Prairie, Wolfe	4	3,460
18-7-5	Prairie, Youts	4	350
18-7-5	Prairie, et al, Davis	4	350
18-7-5	Prairie, Nesbit	2	450
26-7-4	Pure, Dodson	2	189
26-7-4	Pure, Thomas	4	13,469
19-7-5	Pure, Thrailkill	1	197
23-7-4	Shaffer, Cherry	4	235
30-7-4	Shaffer, Tolon	4	560
21-7-5	Shell, Smith	1	111
24-7-4	Sinclair, Blandin	13	1,852
7-7-5	Sinclair, Brandenburg	3	1,455
26-7-4	Sinclair, Bruno	2	3,140
25-7-4	Sinclair, Gilbrea.h	3	877
29-7-5	Sinclair, Nadash	5	480
25-7-4	Sinclair, Nealy	4	340
25-7-4	Sinclair, Nealy-B	2	250
18-7-5	Sinclair, Nesbit	8	2,685
19-7-5	Sinclair, O'Kitchee	7	435
25-7-4	Texas, Cherry	4	2,350
26-7-4	Tidal, Smith	1	75
24-7-4	Westheimer-Daube, Freid	6	940
23-7-4	Westheimer-Daube, Garrett	2	95
	Small pumpers	89	2,032
	Total number wells and production	352	93,319

RECAPITULATION SHEET, MAY 16, 1929

Company—	Little River	Carr	Maud	Mission	Bowlegs	Earlsboro	Seminole	Searight	Total
Amerada	605	....	3,575	1,245	320	1,450	314	369	8,888
Atlantic	....	....	....	....	1,103	110	518	....	1,731
Barnsdall	818	3,350	....	....	348	7,379	1,376	37	13,308
Blackwell	1,310	....	....	....	....	....	....	....	1,310
Bryan-Emery-Carter	13	....	....	....	....	....	....	....	13
Burke-Greis	....	....	....	....	....	2,375	....	....	2,375
Carter	11,943	2,330	....	3,150	3,702	3,270	7,968	3,831	36,133
Champlin	900	....	....	....	....	....	....	....	900
Continental	1,654	....	....	....	....	690	....	....	2,344
Cosden & Co.	....	....	....	....	....	2,090	....	....	2,090
Darby	....	....	9	75	....	....	....	....	84
Dixie	....	....	....	....	90	....	....	....	90
Empire	1,004	4,359	1,167	....	429	944	215	....	8,118
Gypsy	9,471	167	777	10,340	2,408	9,714	2,315	1,215	36,407
Independent	6,242	....	205	5,783	....	2,218	1,889	....	16,337
I.T.I.O.	3,282	....	....	....	7,595	....	2,486	....	13,363
King.-Shell	....	....	....	....	....	....	393	....	393
Laurel	....	....	55	....	....	....	....	....	55
McCullough	....	....	....	....	109	....	....	....	109
Magnolia	1,105	372	466	....	2,067	5,365	244	992	10,610
McCullough-Sands	....	....	....	....	....	....	....	....	....
Marland-Shaffer	351	....	....	....	....	....	....	....	351
Marland-Shell	....	....	148	....	....	....	....	....	148
Marland	....	....	....	1,094	....	....	....	....	1,094
McMahon	....	....	....	720	....	....	....	....	720
Mid-Cont.	3,965	....	25	....	309	1,280	695	2,267	14,041
Mid-Kans.	....	....	....	25	....	35	....	....	60
Minnehoma	....	....	....	720	121	....	....	....	841
Pine	1,375	....	703	693	....	....	....	18	2,789
Pine-Phillips	258	....	....	....	....	....	....	....	258
Phillips	....	....	443	....	....	20	75	....	538
Prairie	8,927	2,580	170	3,252	4,692	6,436	5,064	288	31,409
Prairie-Slick	1,025	....	....	....	....	....	....	....	1,025
Pure	5,374	....	2,194	....	5,232	....	5,912	1,126	19,838
Reiter-Foster	492	....	....	....	....	....	....	....	492
Shaffer	200	....	....	1,560	400	150	....	....	2,310
Shell	1,374	....	....	....	69	1,580	261	210	3,474
Shell-Marland	....	....	....	672	....	....	....	....	672
Shell-Papoose	....	....	....	2,814	....	....	....	....	2,814
Sinclair	3,077	1,768	1,155	1,971	4,551	2,767	2,431	1,550	19,270
Skelly	1,498	....	280	....	....	2,700	....	....	4,478
Skelly-Atlantic	....	....	....	....	....	2,243	....	....	2,243
Skelly-Margay	....	....	325	....	....	....	....	....	325
Snowden-McSweeney	390	....	....	....	....	....	....	....	390
Superior	3	....	....	....	....	1,894	132	....	2,029
Texas	382	....	280	....	465	1,062	285	25	2,500
Texas-Indep.	755	....	....	....	....	....	....	....	755
Tidal	56	....	350	3,135	1,350	3,620	1,790	....	10,301
Turman	....	....	....	....	....	....	1,834	....	1,834
Twin State	140	....	250	3,695	....	100	....	125	4,310
Wilcox	....	....	1,256	....	....	....	....	210	1,466
Total	73,231	14,926	13,832	40,944	36,350	59,492	36,687	12,263	287,725
Total No. wells	333	41	117	113	306	306	276	74	1,567

PRODUCTION OF SEMINOLE AREA

Production of pools in the Seminole area by companies and leases for May 16 follows:

Little River Pool

Company, farm—	Location	Wells	Prod.
Amerada:			
Nitey	2-7-6	3	450
Amerada-Wilcox:			
Fore	35-8-6	2	155
Barnsdall:			
Cotcha	23-7-6	2	595
Hotulke	22-7-6	2	205
Walker	4-7-6	1	18
Blackwell:			
Baker	11-7-6	4	950
Nitey	35-8-6	5	155
Talley	14-7-6	4	705
Bryan & Emery:			
Walker	4-7-6	1	13
Carter:			
Cotcha, M.	23-7-6	3	115
Cudjo, L.	23-7-6	2	800
Fish	36-8-6	4	690
Harjo, C.	11-7-6	3	2,735
Harjo, M.	13-7-6	4	965
Jackson	11-7-6	4	1,050
Larney-B	26-7-6	1	500
Larney	24-7-6	4	2,417
Lena	10-7-6	1	800
Moore	11-7-6	3	340
Tewee	14-7-6	6	1,170
Thomas	11-7-6	1	0
Wilson	12-7-6	1	330
Champlin:			
Tewee	14-7-6	2	900
Continental:			
Cosar	36-8-6	7	952
Cosar, M.	25-8-6	1	202
Cont. & Fisher:			
Milsey	11-7-6	3	490
Empire:			
Charty	24-7-6	1	82
Coker	13-7-6	2	775
Cotcha	27-7-6	1	135
Sandlin	3-7-6	1	12
Gypsy:			
Brown, C.	33-8-6	2	270
Brown, M.	33-8-6	1	577
Campbell	33-7-6	2	25
Conard	22-7-6	2	220
Cosar, W.	36-8-6	2	230
Cotcha	23-7-6	8	4,515
Denmark	11-7-6	4	1,560
Hulhoke	14-7-6	10	932
Mungee	1-7-6	1	3
Payne	5-7-7	1	0
Pottie	35-8-6	4	840
Ren on	11-7-6	3	0
Independent:			
Carpenter	27-7-6	2	1,514
Davis, R.	13-7-6	4	1,465
Tewee	14-7-6	6	1,347
Williams	15-7-6	1	200
Indep. & Highway:			
Harris	23-7-6	8	1,461
Indep. & White Eagle:			
Davis	2-7-6	4	255
I.T.I.O.:			
Campbell	1-7-6	1	129
Dungan	35-8-6	3	463
House, M. A.	1-7-6	1	0
House, W. E.	1-7-6	1	0
House-B	2-7-6	4	871
Hull	26-8-6	3	112
Jackson	1-7-6	3	458
McCulla	1-7-6	3	797
Nitey	2-7-6	6	54
Phoebe-A	36-8-6	2	38
Phoebe-B	36-8-6	3	31
Reed	1-7-6	1	0
Soketheche	1-7-6	3	329
Magnolia:			
Cruse	2-7-6	4	4
Denby	11-7-6	4	256
Harjo-A	14-7-6	2	95
Harjo-B	14-7-6	2	224
Pottie	35-8-6	4	0
Reed, E.	31-8-7	1	30
Reed, L.	22-7-6	3	496
Marland & Shaffer:			
Harrison	4-7-7	1	357
McCulloch & Sands:			
Harrison	4-7-6	1	0
Mid-Continent:			
Brunner	11-7-6	4	115
Eleck	23-7-6	1	35
Smith	5-7-7	4	8,590
Wadsworth	36-8-6	7	225
W. B. Pine:			
Hoyecha	26-8-6	7	1,375
Pine-Phillips:			
Pottie	35-8-6	1	0
Prairie:			
Chilcoat	25-8-6	3	220
Coker	1-7-6	1	260
Dungan	35-8-6	1	0
Gibson	14-7-6	5	1,615
Harris	14-7-6	4	530
House	2-7-6	4	140
Johnson	24-7-6	2	1,410
Lustey	5-7-7	2	70
Moppin	24-7-6	2	242
Reed	13-7-6	2	1,000
Talley	14-7-6	4	750
Williams	15-7-6	2	640
Wood	26-7-6	2	380
Prairie & Amerada:			
Sunny	14-7-6	5	1,380
Prairie & Pine:			
Coker	1-7-6	1	290
Cudjo	26-7-6	2	1,025
Pure:			
Brinson	24-7-6	3	1,493
Cotcha	14-7-6	10	2,516
Harjo	11-7-6	4	1,307
Hollins	11-7-6	1	58
Rei er-Foster:			
Bunyard	14-7-6	4	480
Jefferson	31-7-6	1	12
Shaeffer:			
Narcombe	36-8-6	2	200
Shell:			
Caesar	11-7-6	1	48
Glass	26-7-6	1	16
Hotulke	23-7-6	4	504
Jeffries	23-8-7	1	8
Johnson	13-7-6	4	795
Sinclair:			
Blanton	11-7-6	1	357
Cosar	30-8-6	3	1,025
Haney	13-7-6	1	15
Tewee	14-7-6	2	1,500
Sinclair & Kingwood:			
Pompey	24-7-6	1	180
Skelly:			
Carl	14-7-6	2	1,428
Snowden-McSweeney:			
Tiger	13-7-6	2	390
Superior:			
Potulka	31-8-6	1	0
Soketheche	1-7-6	1	2
Texas:			
Brooks	25-8-6	1	18
Coker	1-7-6	3	100
Janey	11-7-6	6	365
Texas & Independent:			
Hotulke	23-7-6	4	185
Hotulke	22-7-6	2	570
Tidal:			
House	1-7-6	2	30
Johnson	1-7-6	1	26
Twin State:			
Lowe	25-8-6	1	140
Total		333	71,821

Carr City Pool

Company, farm—	Location	Wells	Prod.
Barnsdall:			
Coker	11-8-5	8	3,090
Fife	14-8-5	3	260
Carter:			
Coker	2-8-5	1	2,330
Empire:			
Cluck	11-8-5	9	4,359
Gypsy:			
Coker	10-8-5	1	150
Fife	14-8-5	1	17
I.T.I.O.:			
Simpson	10-8-5	1	0
Tully	10-8-5	1	0
Magnolia:			
Fee	11-8-5	2	363
Killing	14-8-5	1	9
Prairie:			
Billington	11-8-5	8	2,405
Mitchell	15-8-5	1	175
Sinclair:			
Bean	11-8-5	2	520
Harjo	11-8-5	3	1,248
Total		41	14,926

Maud Pool

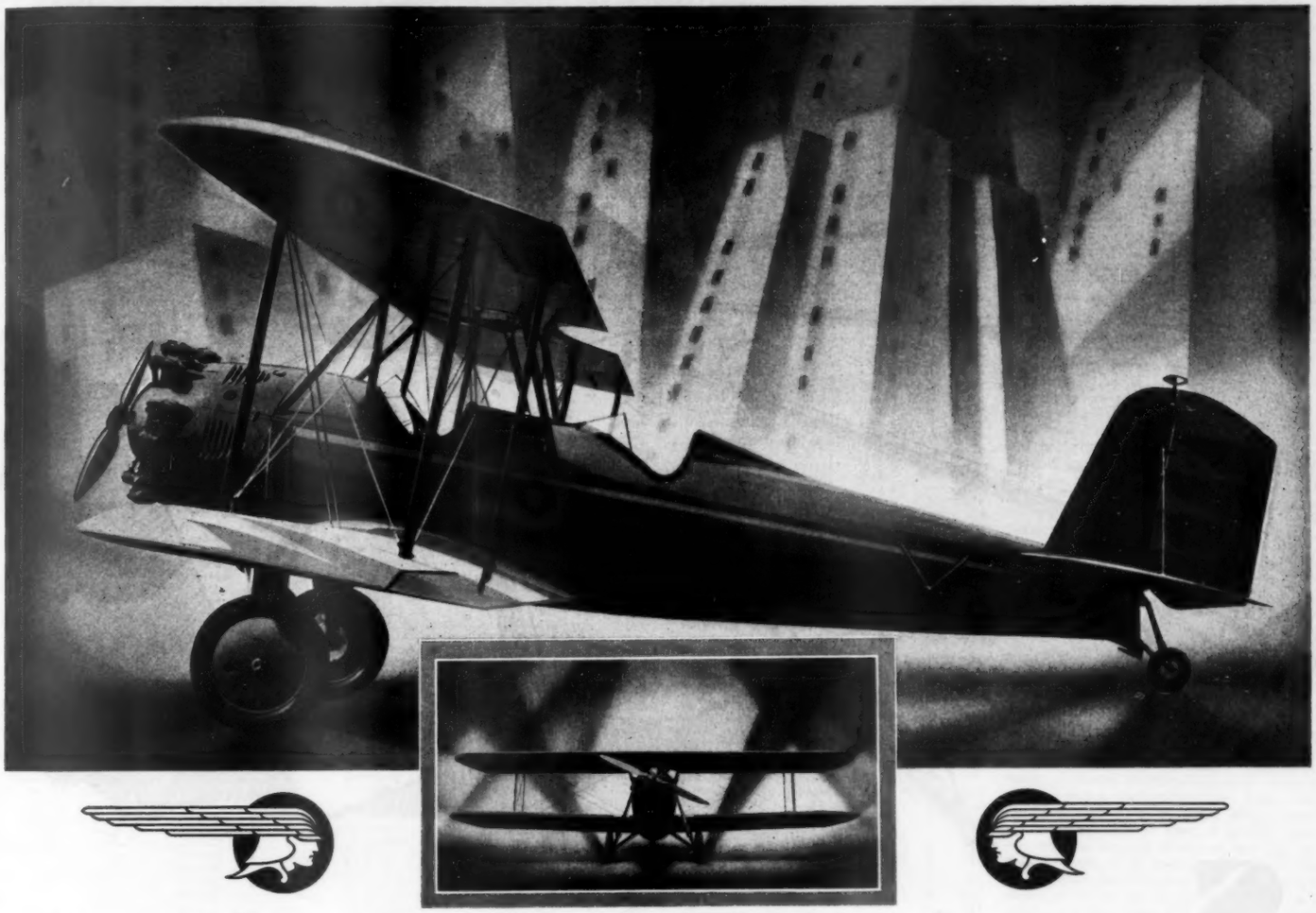
Company, farm—	Location	Wells	Prod.
Amerada:			
Ballard	1-8-4	1	90
Fehlig	7-8-5	2	165
Gossland	8-8-5	3	310
Gravel	1-8-4	1	20
Hallum	1-8-4	4	3,230
Amerada & Barnsdall:			
Wallace	17-8-5	3	420
Amerada & Hull:			
Green	20-8-5	3	280
Darby:			
Ketcham	19-8-5	1	9
Empire:			
Smith	8-8-5	1	1,167
Gypsy:			
Bourassa	7-8-5	4	107
Miller	18-8-5	8	670
Independent:			
Harding	18-8-5	5	305
I.T.I.O.:			
S ate	16-8-5	1	0
Laurel O. & G.:			
Billington	18-8-5	3	38
Magnolia:			
Billington	8-8-5	4	170
Green	20-8-5	1	295
Marland & Shell:			
Everett	18-8-5	2	148
Mid-Continent:			
Shelton	18-8-5	2	25
Phillips:			
Hudson	19-8-5	4	260
Wallace	17-8-5	2	183
Pine:			
Lingefelt	18-8-5	2	40
Smith	8-8-5	1	703
Prairie:			
Campbell	18-8-5	3	125
Prairie & White Eagle:			
Villines	20-8-5	1	45
Pure:			
Lindly	18-8-5	8	352
Urbansky	19-8-5	2	107
Wiley	8-8-5	4	1,735
Sinclair:			
Bellars	19-8-5	10	705
Calvin	7-8-5	2	330
Lewis	6-8-5	2	120
Skelly & Lenox:			
Green	20-8-5	1	280
Skelly & Margay:			
Lingefelt	18-8-5	4	325
Texas:			
Calvin	7-8-5	7	280
Tidal:			
Dunn	12-8-4	1	60
Everett	18-8-5	2	155
Smith	8-8-5	1	135
Twin State:			
Calvin	7-8-5	2	250
Wilcox:			
Smith	8-8-5	3	1,256
Total		117	13,832

Mission Pool

Company, farm—	Location	Wells	Prod.
Amerada:			
Rice	5-8-6	2	1,245
Car er:			
Fuswa	18-8-6	4	2,045
Melisse	9-8-6	1	965
Micco	8-8-6	2	140
Darby:			
Judy	1-8-5	1	75
Gypsy:			
Baby	6-8-6	1	15
Barkus, N.	6-8-6	10	3,715
Barkus, S.	7-8-6	1	242
Dosar	7-8-6	5	635
Hardy	7-8-6	7	1,200
Harjoche	7-8-6	4	225
Micco, L.	8-8-6	2	80
Micco, S.	8-8-6	1	90
Mission	5&6-8-6	7	3,583
Mosar	1-8-5	4	605
Independent:			

(Continued on Next Page)

KEEPING PACE WITH THE TIMES



TODAY the institution that places time upon a par with money has found an ally in the airplane. Almost daily the oil industry adds a new company to the list of those who have found the airplane safe, economical and indispensable.

Meeting with the precise requirements of aircraft in oil field usage, Spartan presents two outstanding airplanes of the year in the Spartan C-3 Challenger (shown above) powered with the Curtiss-Challenger, 170-horsepower motor, and the Spartan C-3 Walter with the 130-horsepower Improved Walter motor.

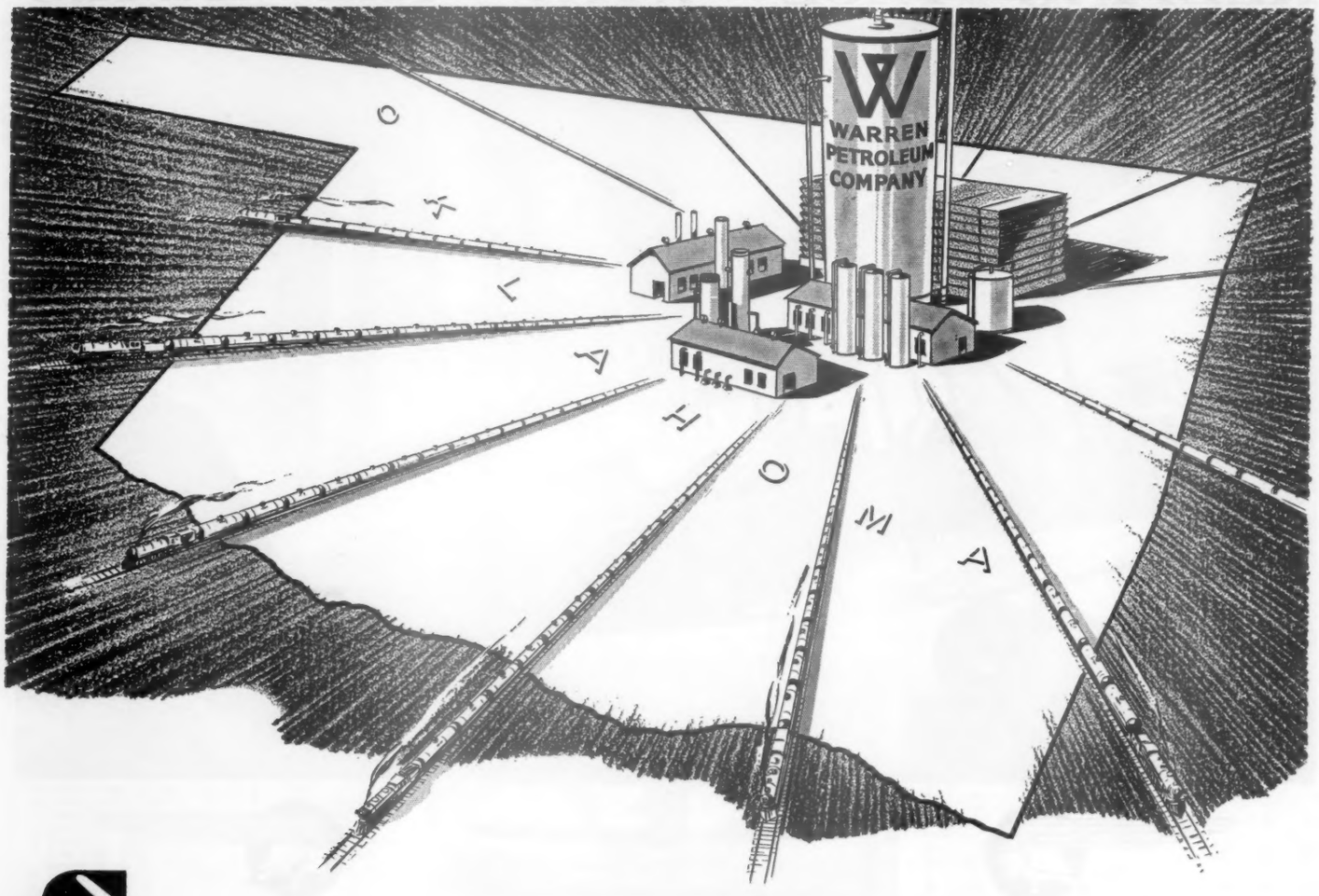
The small field is no problem for the Spartan landing or for quick take-off; its power and speed are sufficient for any job, it is completely equipped for the pilot's convenience and the passenger's comfort; its performance is exceptional and it is designed to *be safe* and built to *stay safe.*

At the price of the Spartan C-3 there is no finer light plane produced today.

SPARTAN AIRCRAFT COMPANY

Tulsa, Oklahoma.

A STABILIZING FACTOR IN THE NATURAL GASOLINE INDUSTRY



Serving the NATURAL GASOLINE MANUFACTURER *and his market ..*

The natural gasoline plant operator who comes to the Warren Petroleum Company with his marketing problems takes the short haul to his market. His plant operation profits are automatically lengthened because the efficiency with which his products are handled by the world's largest natural gasoline marketing organization reduces his selling overhead to a minimum. More than 100 refiners represent the rich market for all grades of natural gasoline produced by the Warren contract plants.

In centralizing his natural gasoline purchases the refiner enjoys the advantage of dealing with one organization for his requirements in any grade of natural gasoline, plus the assurance of prompt, dependable shipments with considerable savings in transportation rates, in most cases. More than 50 operating units located at strategic shipping points represent a constant source of supply. Requests for quotations will receive the personal attention of a principal of the Company.

WARREN
Petroleum Company
TULSA "JUST NATURAL GASOLINE" OKLA.

Company, farm—	Location	Wells	Prod.
Lawson	1-8-5	6	2,398
Indep. & Kistler:			
Payne	7-8-6	4	3,385
Marland:			
Maines	7-8-6	4	1,095
McMahon et al:			
Harjo	7-8-6	2	720
Mid-Continent:			
Ripley	13-8-5	1	0
Mid-Kansas:			
Moore	7-8-6	1	25
Minnehoma:			
Neal	7-8-6	4	720
Pine:			
Harjo	6-8-6	2	665
Micco	8-8-6	1	28
Prairie:			
Crain	7-8-6	1	302
Melton	6-8-6	3	2,325
Micco	5-8-6	1	10
Townsend	6-8-6	1	30
Prairie & Gypsy:			
Owens	18-8-6	2	585
Shaffer:			
Weaver	12-8-5	2	1,560
Shell & Marland:			
Herndon	7-8-6	2	672
Shell & Papoose:			
Maines	7-8-6	8	2,814
Sinclair:			
Hardy	7-8-6	4	1,868
Sinclair & Lenox:			
Judy	1-8-5	1	103
Tidal:			
Nelly	12-8-5	5	2,135
Twin State:			
Hayes	8-8-6	2	1,835
Judy	6-8-6	2	1,060
Ripley	12-8-5	2	800
Total		115	40,944

Bowlegs Pool

Company, farm—	Location	Wells	Prod.
Amerada:			
Roscoe	15-8-6	7	830
Atlantic:			
Baker	10-8-6	4	370
Fleet	23-8-6	3	130
Grayson	13-8-6	4	505
Jones, A.	16-8-6	2	22
Jones, C.	9-8-6	1	76
Barnsdall:			
McNac	28-8-6	1	20
Murrow	11-8-6	4	328
Carter Oil:			
Bowlegs	15-8-6	4	230
Burden	23-8-6	2	235
Harjoche	14-8-6	6	550
Hilly	23-8-6	3	235
Jones	11-8-6	4	402
Walker	15-8-6	4	415
Wise	23-8-6	11	1,526
Dixie:			
Culley	11-8-6	1	90
Empire:			
Lacy	14-8-6	6	270
Wise	23-8-6	2	159
Gypsy:			
Bowlegs	22-8-6	1	0
Bradley	9-8-6	1	7
Cumsey	10-8-6	4	630
Grayson	13-8-6	4	258
Harjoche	10-8-6	3	428
Jones	11-8-6	1	0
Walker	15-8-6	7	905
Wise	23-8-6	2	180
I.T.I.O.:			
Barnett	24-8-6	2	188
Barnett-B	23-8-6	1	41
Billington	22-8-6	4	328
Bowlegs	22-8-6	9	1,500
Davis	13-8-6	4	162
Fay	13-8-6	9	1,297
Gofor.h	15-8-6	12	1,042
Livingston	15-8-6	10	1,354
Lizzie	13-8-6	3	277
Walker	15-8-6	8	709
Williams	12-8-6	1	210
Wilmott	15-8-6	4	285
Work	24-8-6	1	31
Youngblood	24-8-6	2	61
Magnolia:			
Davis	13-8-6	3	450
Davis, M.	13-8-6	1	117
Hammond	10-8-6	8	592
Rhodes	12-8-6	5	400
Van Buskirk	9-8-6	4	508
McCulloch:			
Bowlegs	22-8-6	2	109
Mid-Continent:			
Baker	10-8-6	4	204
Smith	12-8-6	6	605
Minnehoma:			
Bowlegs	15-8-6	3	121
Prairie:			
Gahagan	23-8-6	3	230
Harber	10-8-6	8	1,650
Jones	3-8-6	1	102
Jones	11-8-6	4	300
Templeton	12-8-6	5	1,935
Whitney	23-8-6	4	415
Pure Oil:			
Reed	14-8-6	14	2,325
Strother-D	11&14-8-6	4	403
Strother-F	10-8-6	7	2,504
Shaffer:			
Lacy	14-8-6	3	400
Shell:			
Taylor	16-8-6	5	49
Sinclair:			
Cumsey	10-8-6	4	710
Ellen	11-8-6	5	725
Harjo	14-8-6	3	827
Jones	9-8-6	7	360
Taylor	10-8-6	4	525
Taylor, W.	10-8-6	3	492
Walker	22-8-6	4	913
Texas:			
Reed	14-8-6	11	465
Tidal:			
Grayson	13-8-6	4	450
Harjoche	10-8-6	6	900
Total		306	36,217

Earlsboro Pool

Company, farm—	Location	Wells	Prod.
Amerada:			
Anderson	15- 9-5	2	300
Cowden	4- 9-5	7	1,054
Rogers	3- 9-5	2	86
Atlantic & Gypsy:			
Delaware	13- 9-4	1	0
Atlantic & Sinclair:			
Foreman	18- 9-5	1	110
Barnsdall:			
Brown	10- 9-5	3	1,076
Bruner, F.	2- 9-5	2	185
Bruner, N.	10- 9-5	3	310
Cudjo	14- 9-5	1	56
Davis, D.	11- 9-5	3	360
Davis, J.	11- 9-5	4	1,501
Davis, M.	11- 9-5	2	60
Gibson	9- 9-5	7	890
Hern	15- 9-5	1	1
Ingram	1- 9-5	7	405
Pack, S.	10- 9-5	4	155
Peter	10- 9-5	3	53
Sango	1- 9-5	2	1,300
Sebalka	15- 9-5	1	170
Sullivan, H.	11- 9-5	1	5
Sull-Harjo	10- 9-5	2	22
Wasu ke	13- 9-5	3	870
Burke-Greis:			
Wisner	6- 9-6	2	440
Burke-Greis & Red Bank:			
Mays	1- 9-5	3	1,935
Carter:			
Davis	13- 9-5	3	205
James	6- 9-6	3	1,625
Carter et al:			
Gill'am	13- 9-5	2	1,440
Continental:			
Kays	2- 9-5	2	59
Spencer	12- 9-5	4	631
Cosden, J. S., Inc.:			
Anderson	13- 9-5	1	2,090
Empire:			
Barker	12- 9-5	1	45
Edmondson	3- 9-5	2	60
Empire & Marland:			
Anderson	13- 9-5	1	397
Empire & Amerada:			
Bullock	8- 9-5	1	442
Gypsy:			
Bruner	10- 9-5	4	1,597
Carter, B.	11- 9-5	7	2,372
Earl	16- 9-5	1	13
Hunick	5- 9-5	2	1,725
Lottie	31-10-6	1	30
Noble	12- 9-5	4	1,035
Peter	10- 9-5	1	110
Sango	1- 9-5	13	2,612
State	16- 9-5	3	220
Independent:			
Alexander	31-10-6	1	0
Bruner	10- 9-5	3	235
Sullivan	10- 9-5	1	15
Knapp	8- 9-5	3	1,758
Indep.-Margay:			
Gains	11- 9-5	3	210
Magnolia:			
Anderson	18- 9-6	1	48
Bryant	9- 9-5	6	50
Cowden	4- 9-5	2	22
Dixon	12- 9-5	1	17
Edmondson	3- 9-5	1	4
Germany	30- 9-5	1	21
Gilliam	13- 9-5	2	3,128
Holmsley	11- 9-5	6	20
Hyde	13- 9-5	2	620
Ingram	10- 9-5	1	15
Lena	10- 9-5	3	46
Moore	24- 9-5	1	715
Seay	12- 9-5	9	263
Simpson	10- 9-5	4	307
Sparks	11- 9-5	6	89
Sullivan	12- 9-5	3	0
Mid-Continent:			
McCumber	9- 9-5	7	45
Rogers	5- 9-5	2	1,235
Mid-Kansas:			
Anderson	14- 9-5	1	35
Phillips:			
Dunaway	14- 9-5	1	20
Prairie:			
Baker	24- 9-5	5	1,620
Davis	13- 9-5	3	420
Graham, C.	3- 9-5	2	0
Graham, O.	10- 9-5	4	850
James	6- 9-6	2	25
Stidham	11- 9-5	9	1,156
Prairie & Skelly:			
Campbell	6- 9-6	6	2,330
Prairie & Whitney:			
Harjo	24- 9-5	1	35
Shaffer:			
Clark	1- 9-5	3	150
Shell:			
Bayless	17- 9-5	1	15
Hearn	13- 9-5	1	122
Spencer	12- 9-5	2	1,445
Sinclair:			
Alexander	36-10-5	1	1,140
Foreman	18- 9-5	1	15
Hollins	12- 9-5	1	15
Miller	24- 9-5	1	87
Sango	2- 9-5	4	1,510
Skelly:			
Mays	1- 9-5	4	1,054
Shepard	6- 9-6	4	1,486
Spencer	12- 9-5	1	160
Skelly & Atlan.ic:			
Cherry	6- 9-6	4	443
Lottie	6- 9-6	4	1,800
Superior:			
Ingram	1- 9-5	2	847
Walker	2- 9-5	2	1,047
Texas:			
Anderson	2- 9-5	8	140
Brown	10- 9-5	8	110
James	6- 9-6	2	260
Rogers	5- 9-5	5	505
Wilmott	10- 9-5	6	47
Tidal:			
Walker	35-10-5	3	1,700
Watkins	9- 9-5	7	1,920
Twin States:			
Barker	12- 9-5	3	35
Hern	2- 9-5	2	65
Total		306	59,492

Seminole Pool

Company, farm—	Location	Wells	Prod.
Amerada:			
Fixico	23-9-6	3	63
Killingsworth	23-9-6	4	408
Rentie	23-9-6	3	343
Atlantic:			
Cudjo, N.	35-9-6	3	518
Barnsdall:			
Carter	24-9-6	6	225
Henry	14-9-6	2	466
Jones	34-9-6	4	685
Carter Oil:			
B. Carter	24-9-6	2	95
F. Carter	23-9-6	3	95
Creamer	34-9-6	1	7
Cudjo, R.	35-9-6	4	145
Cudjo, W.	34-9-6	1	150
Gilliland	27-9-6	1	150
Grisso	23-9-6	4	225
Grisso, M.	15-9-6	1	220
Killings, G. F.	14-9-6	4	35
Killings, M. E.	23-9-6	12	4,965
Knapp	13-9-6	1	32
Lukes	27-9-6	5	1,100
Pounder	34-9-6	2	200
Simpson	35-9-6	2	52
Stro hers	34-9-6	4	470
Vierson	23-9-6	1	22
Empire:			
Gross	25-9-6	2	20
Wilson	34-9-6	2	195
Gypsy:			
Butler	35-9-6	4	705
Carter	24-9-6	8	622
Cudjo	34-9-6	4	415
Fixico	26-9-6	7	70
Harjo	25-9-6	3	240
Wolfe	26-9-6	5	260
Independent:			
Fixico, P.	23-9-6	3	445
Harjo	25-9-6	2	65
Butler	35-9-6	3	545
Fix.co, T.	26-9-6	5	418
Jones	26-9-6	4	416
I.T.I.O.:			
Allen	25-9-6	2	43
Bowlegs	26-9-6	12	2,082
Goodin	23-9-6	4	243
Harjo	23-9-6	3	46
James	24-9-6	2	64
Reed	24-9-6	1	8
Kingwood:			
Johnson	22-9-6	3	394
Magnolia:			
Boren	2-8-6	1	4
Franks	25-9-6	3	240
Mid-Continent:			
Rentie	14-9-6	9	520
Tayeche	24-9-6	7	175
Phillips:			
Strothers	27-9-6	2	75
Prairie:			
Cudjo	35-9-6	3	595
Franks	35-9-6	6	1,005
Giblet	35-9-6	3	1,400
Gross	25-9-6	6	30
Mason	26-9-6	1	60
Spencgr	13-9-6	1	7
Strothers	27-9-6	8	1,925
Tiger	1-8-6	1	42
Pure Oil:			
Strothers	26-9-6	17	5,028
Strothers-B	26-9-6	4	543
Stro.hers-C	34-9-6	1	351
Shell:			
Harber	22-9-6	1	229
Lasley	22-9-6	2	32
Sinclair:			
Carter	13-9-6	3	23
Cudjo-A	35-9-6	6	737
Cudjo-B	35-9-6	4	777
Dicey	22-9-6	2	460
Fixico	23-9-6	4	435
Superior:			
Cudjo	35-9-6	4	130
Noble	15-9-6	1	2
Texas:			
Mayhue	14-9-6	1	205
Strothers	2-9-6	1	80
Tidal:			
Carter	24-9-6	4	325
Fixico	26-9-6	7	1,420
Harjo	25-9-6	1	0
Harjo, T.	23-9-6	3	45
Turman:			
Cudjo	35-9-6	4	548
Grisso	35-9-6	1	63
Jones	34-9-6	4	1,223
Total		276	36,692

Searight Pool

Company, farm—	Location	Wells	Prod.
Amerada:			
Johnson	4- 9-6	1	29
Strothers	3- 9-6	2	340
Barnsdall:			
Jackson	5- 9-6	2	37
Carter:			
Davis	4- 9-6	3	615
Frazier	3- 9-6	6	870
Kiker	2- 9-6	1	17
I.T.I.O.	11- 9-6	1	300
Mandier	3- 9-6	2	7
Jackson	10- 9-6	1	0
Scott	26-10-6	1	12
Stewart	10- 9-6	1	920
Carter et al:			
Strothers	11- 9-6	1	1,005
Slick	11- 9-6	1	85
Gypsy:			
Cudjo	4- 9-6	3	293
Nevins	32-10-6	1	922
Magnolia:			
Varnum	32-10-6	2	992
Mid-Continent:			
Grayson	34-10-6	4	27
Saloche	33-10-6	6	820
Mid-Cont. & Homaokia:			
Nevins	32-10-6	4	1,420
Pine:			
Lula	4- 9-6	1	18
Prairie:			
Cannon	33-10-6	1	2
J. Carter	10- 9-6	1	3
Houch	33-10-6	1	3
Hurford	33-10-6	1	200
Kincaid	33-10-6	2	65
Wimer	22-10-6	1	15
Pure:			
Aldridge	3- 9-6	4	1,126
Shell:			
Strothers	3- 9-6	4	210
Sinclair:			
Polly	3- 9-6	4	1,550
Superior:			
Varnum	4- 9-6	1	0
Texas:			
Fleet	4- 9-6	1	35
Twin States:			
Varnum	4- 9-6	2	125
Wilcox:			
Chupco	4- 9-6	7	210
Total		74	12,263

CALIFORNIA FIELDS

(Continued from Page 64)

preparations to start another, No. 2 Krause.

The Huntington Beach Field is experiencing a revival of development work on a small scale due to the operations of several companies working on projected deep tests. The outcome of this deep zone exploration is problematical as geologists are somewhat divided over the possibility of picking up additional horizons. The general consensus of opinion is decidedly negative, although this belief is predicated for the most part on theoretical correlation work due to inadequate records covering early work. One well was finished in this field, the Standard bringing in No. 61-B doing 262 bbls. daily from 4,795 feet. The Potrero Field of Los Angeles Basin is showing increased development especially in the town lot area where the Sunset Petroleum Co.'s No. 1 Pollard was recently completed flowing 370 bbls. per day from 4 520 feet. This is the first well to secure commercial production in the town-lot area north of the Associated's substantial acreage but recent developments tend to indicate the productive limits may possibly extend considerably northwest. Max Pray recently cored an oil sand in his No. 1 Gasbo higher than similar showings were encountered in No. 1 Pollard and the outcome of the test on this well may indicate the existence of another structural high. The Long Beach Field closed a rather uneventful week, although considerable new work is getting under way. Five new wells were spudded and with 14 more being rigged up it is possible at least a similar number will be started down to the pay before another week draws to a close. The Texas Company finished two rather mediocre producers at Long Beach, No. 5-A Harlow Kent doing 330 bbls. daily from 6,600 feet and No. 9 on the same lease making 115 bbls. per day from 7,255 feet.

EAST CENTRAL TEXAS

(Continued from Page 63)

Killam & Phillips' No. 1 Jones, Hampton Survey, is drilling Georgetown at 1,936 feet.

Donoho & Smith's No. 1 Oliver, Limestone County, is drilling shale at 3,030 feet. Segal and associates' No. 1 Runnels, near Hornhill, Limestone County, has spudded. Killam & Phillips' No. 1 Roach, McLennan County, Toby Survey, is drilling broken lime and shale at 902 feet.

In Milam County, Bunswell & Hill's No. 1 Booher, east of Melano, is drilling sandy shale at 1,820 feet. J. M. Burkhead's No. 1 Weignam has been shut down in rock at 320 feet. Chapman and associates' No. 1 Gilchrist is drilling Eagleford shale at 1,810 feet. Goreman Brothers' No. 1 Dornheifer is drilling chalk at 2,725 feet.

Daily average production in East Central Texas for the week ending May 18 was:

East Central Texas

Boggy Creek	2,495
Cedar Creek	130
Currie	427
Mexia	5,565
Minerva	710
Nigger Creek	350
Powell	8,212
Richland	380
Thrall	34
Wortham	1,300
Total	19,603
Total previous week	19,489
Increase	114

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 74)

Champlin Ref. Co.'s No. 1 McLaughlin, 330 ft. S and W of NE cor. Sec. 33, Blk. B-2, H.&G.N. Sur. ..... Stdzng. 2,735 ft.

Crabtree Drlg. Co.'s No. 1 B. F. Talley, SW NE, Sec. 114, Blk. M-2, B.S.&F. Sur. ..... S.D. 2,740 ft.

Cockrell-McElroy et als' No. 1 McConnell, 330 ft. each way from NE cor. W½ SW, Sec. 174, Blk. 3, I.& G.N.R.R. Sur. ..... Show gas 2,890 and 2,920 ft; drlg. 3,315 ft; light spray 3,140-45 ft.

Cockrell-McElroy Oil Co.'s No. 2 McConnell, 330 ft. S and E of NW cor. W½ SW, Sec. 174, Blk. 3, I.&G. N.R.R. Sur. ..... Drlg. 790 ft.

Constan.ine et als' No. 1 Dial, 330 ft. S and E of NW cor. W½ NW, Sec. 32, Blk. 25, H.&G.N. Sur. ..... S.D. 2,965 ft; encountered salt wtr.

Danciger O. & R. Co.'s No. 1 H. K. Beck, 330 ft. S and E NW cor. NW, Sec. 28, Blk. B-2, H.&G.N. Sur. .... Drlg. 2,310 ft; show gas 2,190 ft.

Danciger O. & R. Co.'s No. 4 Morse, 330 ft. S and E NW cor. NW SW, Sec. 1, Blk. 26, H.&G.N. Sur. ..... Rig.

Danciger's No. 2 Shell-Shaw, 330 ft. each way from SE cor. E½ SW, Sec. 5, Blk. 1, A.C.H.&B. Sur. ..... Location.

Danciger et als' No. 1 Sheridan, SE cor. Sec. 184, Blk. B-2, H.&G.N.R.R. Sur. ..... Temp. abd.

Delaney and Associates Oil Co.'s No. 8 Jackson, 990 ft. S and 330 ft. E NW cor. E½ SW, Sec. 88, Blk. B-2, H.&G.N.R.R. Sur. ..... Cellar.

Empire G. & F. Co.'s No. 1 R. M. Brown, C of SE, Sec. 238, Blk. B-2, H.&G.N. Sur. ..... Drlg. 700 ft.

Sines & Reiger's, formerly Eslick et als' No. 1 Mrs. J. A. Hopkins, NW cor. W 80 ac. of SW, Sec. 84, Blk. B-2, H.&T.C. Sur. ..... Fish. pipe 3,206 ft.

Gardner Bros. and Collins' No. 1 Lincoln-Saunder, 330 ft. S and W of NE cor. W½ NE, Sec. 3, Blk. 1, A. C.H.&B. Sur. ..... Drlg. 2,250 ft; 5,000,000 ft. gas 2,-190-2,250 f..

Gardner Bros. & Collins' No. 2 Saunders, 350 ft. from N on center line of W 68 of W½ of E½ of J. G. Eustice Sur. ..... Location temp. abd.

Gulf Prod. Co.'s No. 7-B Bowers, 990 ft. N and 330 ft. W of SE of 160-ac. lease, Sec. 89, Blk. B-2, H.&G. N. Sur. ..... Drlg. 2,410 ft.

Gulf Prod. Co.'s No. 1 Jackson, 295 ft. N and 305 f.. E of SW cor. W½, Sec. 62, Blk. B-2, H.&G.N.R.R. Sur. ..... Drlg. 2,640 ft; show oil 2,635-40 ft; 2,000,000 ft. gas 2,565 ft.

Harrell's No. 1 McConnell, 330 ft. S and W of NE cor. E½ SE, Sec. 187, Blk. 3, I.&G.N.R.R. Sur. ..... Drlg. 2,670 ft.

Independent O. & G. Co.'s No. 1 Hottenbeck, 990 ft. each way from NE cor. NE, Sec. 176, Blk. 3, I.& G.N.R.R. Sur. ..... Drlg. 2,580 ft; 5,000,000 ft. gas from 2,428-83 ft.

Magnolia Pet. Co.'s No. 4 J. B. Bower, 330 ft. S and 270 ft. E of NW cor. Sec. 63, Blk. B-2, H.&G.N. R.R. Sur. ..... Drlg. 2,745 ft.

Marland Prod. Co.'s No. 2 Brown, 330 ft. N and W SE cor. Sec. 32, Blk. B-2, H.&G.N.R.R. Sur. ..... Show gas 2,475-85 ft. and 5,000.-000 ft. gas 2,560-2,620 ft; drlg. 2,814 ft; estimate 17,000,000 f.. gas 2,775-80 ft; 20,000,000 ft. gas 2,807-14 ft.

McConnell Oil Co.'s No. 1 McConnell, 330 ft. from N and E lines W½ NE, Sec. 65, Blk. 4, I.&G.N. Sur. ..... Location.

McLain Oil Co.'s No. 1 Back, 1,000 ft. from W line and 330 ft. from N line, NW, Sec. 24, Blk. 25, H.& G.N. Sur. ..... S.D. 2,340 ft; 1,000,000 ft. gas 2,-105-10 ft. and estimated 3,000,-000 ft. gas 2,202-08 ft.

McMan O. & G. Co.'s No. 1 Saunder, 330 ft. N and E of SW cor. E 80 ac. W½ of E½, J. G. Eustice Sur. ..... U.R. 8-in. csg. 2,480 ft.

Nabob Oil Co.'s No. 2 Morse, 660 ft. from W line and 330 ft. from S line SW, Sec. 67, Blk. 25, H.&G. N.R.R. Sur. ..... Cellar; temp. abd.

Operators Oil Co.'s No. 7 Jackson, 330 f., S and 270 ft. W NE cor. N½ NE, Sec. 88, Blk. B-2, H.&G.N. Sur. Show gas 2,256 ft; stdzng 2,780 ft.

Phillips Pet. Co.'s No. 1 Jackson, 330 ft. each way from NE cor. NE, Sec. 58, Blk. B-2, H.&G.N.R.R. Sur. Rig.

Phillips Pet. Co.'s No. 5 Jackson, 330 ft. S and 990 ft. E NW cor. S½ NE, Sec. 88, Blk. B-2, H.&G.N. Sur. S.D. 238 ft; rebuilding rig.

Phillips Pet. Co.'s No. 1 Palmer, 330 ft. N and W SE cor. Sec. 31, Blk. B-2, H.&G.N.R.R. Sur. ..... 25,000,000 ft. gas 2,761-67 ft; T.D. 2,816 ft; flowed 1,150 bbls. in 24 hrs. from 2,795-2,816 ft; flowed 50 bbls. oil first hr. and 10 bbls. per hr. first 24 hrs. with 40,000,000 ft. gas.

Panhandle Ref. Co.'s No. 1 Saunders, 330 ft. S and E NW cor. E½ NE, Sec. 3, Blk. 1, A.C.H.&B. Sur. .... 15,000,000 ft. gas 2,150-2,320 ft; drlg. 2,480 ft.

Panhandle Ref. Co.'s No. 2 Saunders, 330 ft. S and W NE cor. E½ NE, Sec. 3, Blk. 1, A.C.H.&B. Sur. ..... Drlg. 1,945 ft.

Scott Drlg. Co. et als' No. 1 Chapman, 330 ft. N and E SW cor. S½ NE, Sec. 69, Blk. 25, H.&G.N. Sur. .. Spudding.

Ray Massie's No. 4 Chapman, 330 ft. each way from NW SE SW, Sec. 51, Blk. 25, I.&G.N. Sur. ..... Rig.

Shamrock Co.'s No. 3 Clayton, 150 ft. from W and 330 ft. from N line, E 277.4 ac., Sec. 50, Blk. 25, H.& G.N.R.R. Sur. ..... Rigging up.

Shamrock Pe.. Co.'s No. 2 Chapman-A, 990 ft. E and 330 ft from S lines S½ SW, Sec. 70, Blk. 25, H.& G.N.R.R. Sur. ..... T.D. 2,916 ft; to abd.

Shamrock Co.'s No. 1 Clayton-B, 730 ft. from N and 150 ft. from W line E½ of E 277.4 ac., Sec. 50, Blk. 25 ..... Rigging up.

Shell Pet. Corp.'s No. 3 McConnell, 330 f.. N and W SE cor. Sec. 174, Blk. 3, I.&G.N.R.R. Sur. ..... Location.

St. Clair Oil Co.'s No. 1 Dial, 330 ft. S and W NE cor. SE, Sec. 10, Blk. 25, H.&G.N.R.R. Sur. ..... Cellar.

St. Clair Oil Co.'s No. 1 Rowe, Sec. 32, Blk. R ..... S.D. 3,490 ft. with H.F.W.

St. Clair Oil Co.'s No. 1 L. S. Stockton, SE cor. Sec. 35, W. R. Lee Sur. ..... Spudded and S.D.

Sun Oil Co.'s No. 1 Purviance, 330 ft. S and W NE W 80 ac., Sec. 61, Blk. B-2, H.&G.N.R.R. Sur. ..... Drlg. 2,735 ft; 3,000,000 ft. gas 2,-655-75 ft.

The Texas Co.'s No. 6 Bowers, 270 ft. W and 330 ft. N SE cor. E½, Sec. 89, Blk. B-2, H.&G.N.R.R. Sur. .. Drlg. 2,550 ft.

The Texas Co.'s No. 7 Bowers, 330 ft. E and 990 ft. N SW cor. E½, Sec. 89, Blk. B-2, H.&G.N. Sur. ..... Drlg. 2,740 ft.

The Texas Co.'s No. 2 B. Bull, 990 ft. S and E NW, Sec. 2, Blk. B-2, H.&G.N.R.R. Sur. ..... Fish. 1,440 ft.

The Texas Co.'s No. 2 Chapman-B, 990 ft. N and E SW cor. Sec. 50, Blk. A-9, H.&G.N.R.R. Sur. ..... U.R. 8-in. csg. 1,890 ft.

The Texas Co.'s No. 6 Chapman-A, 330 ft. N and 755 ft. E SW cor. SE, Sec. 51, Blk. 25, H.&G.N. Sur. ..... Drlg. 2,162 ft.

The Texas Co.'s No. 1 Faulkner, 330 ft. each way from NW cor. Sec. 29, Blk. B-2, H.&G.N. Sur. ..... Show oil and 4,000,000 ft. gas 2,-480-2,610 ft; T.D. 2,812 ft; flowed 1,462 bbls. in 19 hrs. and 6,000,000 ft. gas.

The Texas Co.'s No. 2 Faulkner, 330 ft. each way from SW cor. Sec. 29, Blk. B-2, H.&G.N.R.R. Sur. ..... Stdzng. 2,804 ft.

The Texas Co.'s No. 5 McLarty-A, 330 ft. S and E of NW cor. Sec. 2, Blk. 1, A.C.H.&B. Sur. ..... Show gas 2,235 ft; drlg. 2,410 ft.

The Texas Co.'s No. 2 McLarty-B, at center of J. M. Rose Sur. ..... Rig.

The Texas Co.'s No. 2 Shaw, 1,000 ft. from S and 330 ft. from W line E½, Sec. 5, Blk. 1, A.C.H.&B. Sur... Drlg. 300 ft.

The Texas Co.'s No. 4 Williams, 330 ft. each way from NE NE NW, Sec. 6, Blk. 1, A.C.H.&B. Sur. ..... Location.

Travis et als' No. 2 Back, 330 ft. each way from NW cor. E½ SE cor. Sec. 44, Blk. 25, H.&G.N.R.R. Sur... Drlg. 2,025 ft.

Wilcox-Pampa Oil Co.'s No. 7 Comb-Worley, 330 ft. N and E SW cor. SE, Sec. 60, Blk. 3, I.&G.N. Sur. ..... Location.

Wilcox-Pampa Oil Co.'s No. 8 Comb-Worley, 330 ft. NW of SE SE Sec. 60, Blk. 3, I.&G.N. Sur. ..... Location.

HOCKLEY COUNTY

World Oil Co.'s N. 1 Ellwood, 320 ft. from N and W lines, League 7, Wilbarger County School lands; elevation 3,363 f..; contract depth 5,000 ft. ..... S.D. 1,455 ft.

HARTLEY COUNTY

Amarillo Oil Co.'s No. 9 Lee Bivins "A," C NW, Sec. 6, Blk. 21 ..... T.D. 3,610 ft; fish. csg.

Canadian River Gas Co.'s No. 10 Burns-A, 660 ft. N and 660 ft. E, Sec. 18, Blk. 2, G.&M. Sur. ..... 2,500,000 ft. gas 3,290-3,440 ft; drlg. 3,660 ft.

HUTCHINSON COUNTY

Amarillo Oil Co.'s No. 2 Ingerton-A, 1,650 ft. from N line, 1,071 ft. from E line, Sec. 41, H.&T.C.R.R. Sur.. Fish. 790 ft.

Gulf Prod. Co.'s No. 44 Dial, 330 ft. N and 325 ft. W NE cor. Sec. 36, Blk. M-23, T.C.R.R. Sur. ..... Drlg. 3,075 ft; swbd. 147 bbls. in 12 hrs.

Gulf Prod. Co.'s No. 45 Dial, 660 ft. S and 660 ft. W NE cor. S½, Sec. 25, Blk. 47, H.&T.C. Sur. ..... Show oil 2,678 ft; drlg. 2,800 ft; swbd. 41 bbls. in 6 hrs. after 300-qt. shot.

Holmes et als' No. 1 Moore, 330 ft. N and E SW cor. N½ E 80 ac., SE, Sec. 125, Blk. 4, I.&G.N.R.R. Sur.. S.D. 410 ft.

Holmes et als' No. 2 Quinn, 990 ft. from S line and 330 ft. from E line SW, Sec. 7, Blk. 9, I.&G.N. Sur. ..... Cellar.

Marland Prod. Co.'s No. 1 Sanford-C, 783 ft. N and 230 ft. W SE cor. N½, Sec. 79, Blk. 46, H.&T.C.R.R. Sur. ..... Drlg. 2,610 ft.

McMan O. & G. Co.'s No. 2 Sanford, 300 ft. from W line and 315 ft. from S line N 274 ac., Sec. 83, Blk. 46, H.&T.C. Sur. ..... Location.

Oil Operators Trus. Co. and Marland's No. 2 J. M. Stanford-B, Sec. 82, Blk. 46, H.&T.C. Sur. ..... S.D. 3,039 ft.

O. B. Penney's No. 2 Johnson Bros., 330 ft. from S line, 330 ft from W line W½ NE, Sec. 35, Blk. Y, A.& B. Sur. ..... Location.

Phillips Pet. Co.'s No. 1 Johnson Bros., 330 ft. from N and W lines NW, Sec. 34, Blk. Y, A.&B. Sur. ..... Bldg. rig.

Phillips Pet. Co.'s No. 4 Johnson-Pulaski, 330 ft. from N line and E line of W½, Mary Whitley Sur. ..... Drlg. 2,830 ft.

Phillips Pet. Co.'s No. 5 Johnson Bros. (Florence), 330 ft. each way from S and E line of E½, Mary Whitley Sur. ..... Set 6-in. csg. 2,800 ft.

Phillips' No. 1 Stanford-Glass, 660 ft. S and E of NW cor. S 80 ac. of N 160 ac. of S 320 ac., Sec. 80, Blk. 46, H.&T.C. Sur. ..... Drlg. 1,740 ft.

Phillips Pet. Co.'s No. 6 (Florence), 330 ft. each way from S and W lines, E½ ..... Rig.

KING COUNTY

The Texas Co.'s No. 1 J. H. Johnson ..... S.D. 4,300 ft.

Huff Oil Co.'s No. 1 Martin, 1,320 ft. from N line and 1,320 ft. from E line, Sec. 171, Blk. F, H.&T.C. Sur... Rig.

LAMB COUNTY

Dan Freed et als' No. 1 Ellwood, CWL, Sec. 9, Blk. T. T. A. Thompson Sur. ..... S.D. 950 ft.

LIPSCOMB COUNTY

Brown et als' No. 1 Box T Ranch, SW NE, Sec. 612, H. &T.C. Sur. ..... S.D. 3,128 ft.

Ruby Oil Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T C. Sur. ..... S.D. 4,428 ft.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles Ranch ..... Small show oil 1,133-40 ft; sand; fish 4,167 ft.

MOORE COUNTY

Amarillo Oil Co.'s No. 1 Read-A, C NW, Sec. 14, Blk. 13-12, D.&P. Sur. ..... Location.

Amarillo Oil Co.'s No. 1 Perkins-A, 330 ft. each way out of NW cor. NE, Sec. 76, Blk. 3 ..... Location.

Amarillo Oil Co.'s No. 2 Warrick, C S 160 ac., Sec. 92, Blk. 46, H.&T.C. Sur. ..... Drlg. 2,885 ft; 6,000,000 ft. gas.

Barnsdall Oil Co.'s No. 1 Harrison, 330 ft. from N line and 330 ft. from E line S½ NE, Sec. 5, Blk. M-2 .. Drlg. 2,240 ft.

Canadian Gas Co.'s No. 1 Kilgore-A, 2,716 ft. S and 2,695 ft. W NE cor. Sec. 1, Eustice Sur. ..... Drlg. 3,110 ft.

Dana O. & G. Co.'s No. 1 Anthony, C NW, Sec. 260, Blk. 44, H.&T.C.R.R. Sur. ..... Bldg. rig.

Dana O. & G. Co.'s No. 1 Road-A, C NW, Sec. 14, Blk. B-12 ..... Location.

Fritch O. & G. Co.'s No. 1 Lee Burns, C NE 40 ac. of N 160 ac., Sec. 4, Geo. Mahan Sur. ..... Spudded and S.D.

Phillips Pet. Co.'s No. 1 Burnett, 330 ft. each way from NE cor. NE, Sec. 192, Blk. 3-T, T.&N.O. Sur... S.D. 3,582 ft; plugged back to 3,-372 ft; shot 100 qts. 3,340-72 ft; no results; to complete for gas well.

Phillips Pet. Co.'s No. 3-A Sneed, Jr., 1,600 ft. S and 430 ft. W of NW cor. J. N. Proctor Sur. ..... Swbd. 30 bbls. 3,126-31 ft; T.D. 3,-139 ft.

Phillips Pet. Co.'s No. 1 Taylor, 330 ft. N and E SW cor. E½ NW cor. Sec. 244, Blk. 3-T, T.&N.O. Sur. ..... T.D. 2,650 ft.; S.D. for completion of No. 1 Burnett.

Phillips No. 1 Wilson, 330 ft. each way out of NW cor. S½ SE, Sec. 157, Blk. 3-T ..... Location.

Skelly Oil Co.'s No. 8 Armstrong & Byrd, 2,920 ft. S and 3,752 ft. of NW cor. Proctor Sur. ..... Location.

Skelly Oil Co.'s No. 9 Armstrong & Byrd, 2,220 ft. S and 990 f.. E NW cor. Proctor Sur. .. .. Location.

MOTLEY COUNTY

Expltn. Co.'s No. 5 Matador, C, Sec. 45, Blk. J-B, C. B.&C.N.G.R.R. Sur. ..... Fish. 300 ft.

Expltn. Co.'s No. 6 Matador, 330 ft. from N line and 330 ft. from E line, Sec. 132, Blk. M ..... Rig.

Matador Oil Corp.'s No. 1 Owen, C NE, Sec. 10, Blk. G, B.&B. Sur. ..... Rig.

ROBERTS COUNTY

Big Bend Oil Co.'s No. 1 Ledrick, Sec. 7, Blk. 5-A .. S.D. 5,975 ft.

WHEELER COUNTY

Anderson's No. 1 Meiners, C SW SE, Sec. 71, Blk. 17, H.&G.N.R.R. Sur. ..... Location.

Byrens et als' No. 1 Johnson, SW cor. NE, Sec. 88, Blk. A-5, H.&G.N. Sur. ..... Fish. csg. 2,920 ft.

Gibson Oil Co.'s No. 7 Bentley, 330 ft. N and W of SE cor. NW SE, Sec. 42, Blk. 24, H.&G.N. Sur. ..... Drlg. 1,600 ft.

Gillespie et als' No. 1 McMurtrey, C NW SE, Sec. 67, Blk. 17, H.&G.N. Sur. ..... Cellar.

Lone Star Gas Co.'s No. 1 Griswold, C NE SE, Sec. 1, Blk. 24, H.&G.N. Sur. ..... Drlg. 1,065 ft.

Lone Star Gas Co.'s No. 1 Ridenger, C SW NW, Sec. 65, Blk. 17, H.&G.N.R.R. Sur. ..... Drlg. 1,335 ft.

Magnolia Pet. Co.'s No. 1 Trostle, C S½ NW SW, Sec. 130, Blk. 23, H.&G.N.R.R. Sur. ..... Drlg. 100 ft.

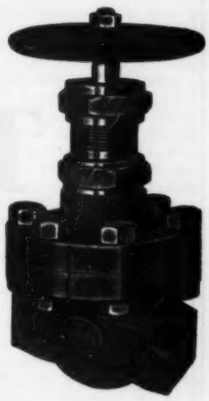
Mudge Oil Co.'s No. 2 Hicks, C SE NW, Sec. 52, Blk. 17, H.&G.N. Sur. ..... Show gas 1,510-25 ft; drlg. 1,790 ft.

L. W. Rook's No. 2-A Smock, C SW SE, Sec. 5, Blk. 24, H.&G.N. Sur. ..... Temp. abd.

The Texas Co.'s No. 2 Gordon, 660 ft. N and E of SW cor. NW, Sec. 91, Blk. 17, H.&G.N. Sur. ..... Drlg. 700 ft.

Upham Gas Co.'s No. 1 Gooch, C NE SE, Sec. 81, Blk. 17, H.&G.N. Sur. ..... Fish. bit 850 ft.

LUDLOW VALVES



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TANGIBLE PROOF OF PROGRESS

When co-operative effort in accident prevention was first sponsored by the Mid-Continent Oil & Gas Association in 1925 there was a sincere question in the minds of many as to the possible effectiveness of the work. All realized that the results would be dependent on and in proportion to the enthusiasm with which the program was received by the employees in the various departments of the Industry. It has generally been taken for granted that the least responsive fields are those in which the most intense activity exists. Also, it is conceded that the major portion of the accidents which occur are traceable to lack of active interest in their prevention on the part of the supervisor in charge of the work on which the accident occurs.

In view of the above the enthusiastic Safety Banquet held in Shawnee, Oklahoma, May 6th, was much more than a successful safety meeting. The fact that the local executives voluntarily entered a 90-day contest to see which company organization could maintain the best accident experience answers the question as to the sincere interest which they take in the work. The interest crystalized in this meeting should result in proof that, even in territory as active as Greater Seminole, the work can be carried on without the usual routine accidents.

We firmly believe that the supervisory forces in the Greater Seminole Area will succeed in establishing a new record in accident experience. They have both the ability and desire to succeed and the combination of these characteristics naturally leads to success in any undertaking.

SAFETY SECTION
MID-CONTINENT OIL & GAS ASSOCIATION

"Accidents can MID-CONTINENT OIL & GAS ASSOCIATION be prevented"

(This space contributed by a member of the Mid-Continent Oil & Gas Association)

GULF COAST FIELDS

(Continued from Page 59)

which was killed when drilled into by Rexall Oil Co.'s No. 1 McLean recently, is drilling shale in sidetracked hole at 4,670 feet. No. 3 is rigged. Unice Oil Co.'s No. 1 Feldman is drilling shale at 5,050 feet.

On the southwest side of the dome, Sun Oil Co.'s No. 1 Chambers is drilling hard sand and shale showing oil at 5,640 feet. No. 2 Chambers is drilling gumbo at 3,766 feet. Yount Lee Oil Co.'s No. 4 Chambers is drilling lime rock at 5,494 feet. This company's No. 6 Chambers is drilling hard sand and lime.

Midway between the above deep producing areas, Republic Production is getting ready to drill No. 1 Kirby. On the north side of the dome, Mills Bennett Production Co.'s No. 1 Barber is drilling lime rock at 5,287 feet.

Boling—Fort Bend and Wharton

Cullen & West's No. 6 Bay on the northeast side of the dome, is drilling gumbo at 2,717 feet. Sun Oil Co.'s No. 6 E. C. Farmer is drilling shale at 3,075 feet. No. 7 E. C. Farmer has spudded. The Texas Company's No. 1 Busnell is drilling black shale and lime at 4,051 feet. This company's No. 1 Pleasants is drilling heaving shale at 4,135 feet.

Humble—Harris County

Humble Oil & Refining Co.'s No. 1 Williams, southwest extension deep test, is drilling sandy shale at 4,270 feet. The Texas Company's No. 26 Land Slide, its north offset, is rigged up. The latter company's No. 262 Land Slide is waiting casing cement to set at 3,860 feet. Bottom of the hole is in brown shale at 3,950 feet. This company's No. 263 Land Slide is drilling gumbo and boulders at 2,205 feet. No. 265 Land Slide is a derrick and No. 21 Wheeler & Pickens is spudded. South Texas Petroleum Co.'s No. 4 Morris is drilling sand at 4,374 feet. No. 5 Morris has been spudded and No. 1 Burt is rigged. Marland Oil Co.'s No. 1 Cezeaux, Ruhl Survey, to the east of the deep sand pool, is drilling shale at 612 feet.

Sun Oil Co.'s No. 47 River, north side, is drilling shale at 3,953 feet.

DeWalt—Fort Bend County

Humble Oil & Refining Co.'s No. 7 Sugarland is in shale showing oil at 3,664 feet. No. 8 Sugarland is a derrick. No. 3 Nelson is drilling shale and lime at 677 feet. No. 4 Nelson is a derrick. No. 4 Camp is drilling shale and lime at 794 feet. No. 6 Brazos Farms is drilling sandy shale at 3,162 feet. A location has been made for No. 2 Dew Brothers. No. 1-B Deatherage is drilling gumbo at 3,268 feet. No. 1 Hamner fee is drilling gumbo and lime at 1,785 feet. No. 2 Hamner fee is drilling sandy lime at 2,937 feet. No. 4 Hamner fee is drilling sandy shale at 3,200 feet. No. 3 is a location.

Raccoon Bend—Austin County

The authorization of 11 new locations was the most interesting development at Raccoon Bend during the week. The majority of these, however, will not be drilled immediately. Humble Oil & Refining Co. and Valley Oil Corp.'s No. 1-D Ernest Grawunder, 9,000-foot south extension test, is drilling sandy shale at 3,795 feet. No. 4 Hardy, north edge of production, is drilling hard sand and lime. No. 5 Hardy is a location. No. 2 Ollie Wilson is drilling hard sand and shale at 2,946 feet. No. 3 Saunders is rigged up. No. 1 Buchanan was swabbing as the week closed. It is in oil sand at 3,570 feet. No. 1 Mueller is drilling shale at 3,131 feet. No. 2 Mueller is a location. No. 2-A Bracey is drilling sandy shale at 1,413 feet. No. 1 Helmuth is drilling shale and sand at 2,558 feet. No. 1 Stahlbaum is drilling shale at 976 feet. No. 1-A Mitchell is waiting cement to set at 219 feet. No. 1-B Mitchell is a derrick. No. 1 Koehn and No. 2 Stravoski are rigs.

Blue Ridge—Fort Bend County

Gulf Production Co.'s No. 15 Luscher is drilling gumbo and lime at 1,742 feet. This company's No. 17-B Blakely was completed during the week as a small pumper. Moody Corp.'s No. 7 West-Schenck, south side of the dome, is drilling hard sand and lime at 4,300 feet. Navarro Oil Co.'s No. 1-C Robinson, northwest side of the dome, is drilling packed sand at 1,329 feet.

Pierce Junction—Harris County

Gulf Production Co.'s No. 8 Cain, east side, is drilling sand and shale at 4,546 feet. This company's No. 3 Fitzsimmons-Hamman is drilling sand and shale at 4,376 feet, and No. 30 Taylor is a location. Navarro Oil Co.'s No. 1-B Cain, a former producer, is milling out at 4,202 feet. Navarro Oil Co. and Humble Oil & Refining Co.'s No. 3 Dooley is drilling hard sand and lime at 3,590 feet. Navarro and Texas Exploration Co.'s No. 15 Dooley is drilling hard sand at 4,076 feet. T. G. Shaw and Texas Exploration Co.'s No. 3 Fitzsimmons-Barron is a derrick. Moody Corp. has made location for No. 2-A Whitehead. This company's No. 2 Calvert is rigged up. No. 4 Hume is drilling at 2,721 feet.

On the west side, Rio Bravo Oil Co.'s No. 9-B Settegast had set screen at the close of the week to test at 3,447 feet. This is a workover. Rio Bravo Oil Co.'s No. 15-A Settegast is drilling lime rock at 1,339 feet. No. 14-A Settegast is standing a derrick and No. 4 fee, a former well, is rigging up to deepen. Saxet Gas Co.'s No. 2 Herman Estate (formerly Harvey Smith and associates' No. 2 Herman Estate) swabbed salt water at 3,735 feet and is pulling screen to deepen. This company also has made location for No. 3 Herman. Pure Oil Co.'s No. 1 Herman Estate is preparing to drill deeper. Moody Corp. has made location for No. 1 Herman Estate. Gulf Production Co.'s No. 29 Taylor is drilling sand and shale at 3,448 feet.

South Texas Petroleum Co.'s No. 1 Meyers, a wildcat on the far south side of the dome, is drilling sand and shale at 4,584 feet.

Liberty—Liberty County

Empire Oil & Gas Co.'s No. 3 Goggan, 175 feet east of No. 2 which extended the field north, is rigged up. Sun Oil Co.'s No. 45 Mitchell, south offset to No. 2 Goggan, also is rigged. Yount Lee Oil Co.'s No. 17 Mitchell, east side, is in gumbo at 639 feet. All three at present are standing because of high water.

In the shallow sand areas, Vacuum Oil Co.'s No. 11 Barrett is drilling shale and lime and sand at 2,782 feet. Sun Oil Co.'s No. 44 Mitchell is testing a shallow sand at 1,096 feet. Navarro Oil Co.'s No. 3 Baldwin Community is washing to test at 3,315 feet, it having failed to pick up the shallow sands. This company also has made location for No. 1 Gulf. Humble Oil & Refining Co.'s No. 4-B Reviere is drilling sandy shale at 2,504 feet.

The Texas Company's No. 3 Pickett, northwest side, is in sand and shale at 5,145 feet. High water is delaying drilling in this test.

Spindletop-Jefferson County

Gulf Production Co.'s No. 8 Roche, a former well being deepened, is drilling sand at 3,349 feet. Unity Oil Co.'s No. 14 Gladys City has spudded. Yount Lee Oil Co.'s No. 100 McFaddin is waiting cement to set at 4,007 feet. No. 101 McFaddin is in sand at 3,774 feet. No. 103 McFaddin is drilling gumbo at 2,464 feet and No. 104 is drilling shale at 1,036 feet. A rig is up to deepen No. 49 McFaddin, originally a 1,000-bbl. well at 2,895 feet. Yount Lee Oil Co.'s No. 86 Gladys City is drilling shale and lime at 4,637 feet. Its No. 89 Gladys City is drilling gumbo at 2,689 feet. No. 90 is rigged. No. 76 is drilling sand at 5,892 feet.

Big Creek—Fort Bend County

The Texas Company's No. 5 Wheat is drilling sand and shale at 3,235 feet. Navarro Oil Co.'s No. 3 Hausler is in a broken formation at 3,200 feet and has set casing. This company's No. 4 Davis is rigging up. Gulf Production Co.'s No. 53 Davis is drilling hard sandy lime at 3,510 feet and the latter's No. 34 Davis, a former well being deepened, is down 3,694 feet.

Hull—Liberty County

Gulf Production Co.'s No. 25 Morris-Phillips, a semiwildcat on the north side of the dome, is drilling deeper with bottom of the hole now at 5,267 feet. Republic Production Co.'s No. 1 Taylor is drilling at 2,981 feet. All other active rigs are workovers including Empire Gas & Fuel Co.'s No. 21 Barngrover which is down 3,550 feet. Gulf Production Co.'s Nos. 64 and 80 Pheonix, Humble Oil & Refining Co.'s No. 4 Hooks-Spell, and Republic Production Co.'s Nos. 65 and 97 Dolbear.

Miscellaneous Texas Fields

At Nash Dome, Brazoria County, Rycade Oil Corp. is rigging up for No. 26 Wisdom, using the rig from No. 23 which was completed during the week as a small producer. Sinclair Oil & Gas Co.'s No. 6 Norton, Damon Mound, Brazoria County, is drilling lime rock at 3,175 feet. Leonard Petroleum Co.'s No. 4 Wisdom, Damon Mound, is drilling gumbo at 1,035 feet. Rycade Oil Corp. and Humble Oil & Refining Co.'s No. 6-A Kountze, Markham, Matagorda County, is still trying to pull screen to deepen from 3,797 feet. West Production Co.'s No. 1 Myers, Markham, is drilling hard sand at 4,238 feet. Gulf Production Co.'s No. 19 Moore, Orchard, Fort Bend County, is drilling gumbo and lime at 2,383 feet. Sun Oil Co.'s No. 2 Kovelcik, North Dayton, is drilling shale at 4,331 feet. The Texas Company's No. 24 Arnold, West Columbia, Brazoria County, is standing a location.

SOUTH LOUISIANA

Hackberry—Cameron Parish

Cameron Oil Co. and Rycade Oil Corp. jointly have made location for their No. 2 Vincent in the pool recently opened on the south side of the Old Hackberry Dome. It is 250 feet west and 80 feet south of the NW cor. SW SE, Section 29-12s-10w. In the same area, Fraim Oil Co.'s No. 1 Duhon is sidetracking in shale at 3,392 feet; Progressive Oil Co.'s No. 1 Little is waiting cement to set at 2,990 feet; Sun Oil Co.'s No. 3 Vincent is drilling shale at 2,557 feet; Sunshine Oil Co.'s No. 1 Vincent is in shale and sand at 2,014 feet, and Yount Lee Oil Co.'s Nos. 2 and 3 Kaough are standing.

On the west side of the dome, Rycade Oil Corp. and Humble Oil & Refining Co. jointly have made location for No. 3 Gulf Land, which is 1,400 feet east and 400 feet south of the NW cor. Section 30-12s-10w.

At East Hackberry, Calcasieu Oil Co.'s No. 6 Dorion is drilling rock at 3,996 feet and No. 1 Lenke is drilling sandy shale at 3,749 feet.

Lockport—Calcasieu Parish

Shell Petroleum Corp.'s No. 1 Miller, north of the field, has set 9⅝-inch casing at 5,082 feet to test a showing at that depth. The Texas Company's No. 1 Moss is drilling water sand at 4,353 feet. Vacuum Oil Co. and Gulf Refining Co.'s No. 24 Miller is in oil sand at a total depth of 3,960 feet and is waiting to drill 9⅝-inch plug at 3,925 feet. This company's No. 5 Bayou D'Inde also will test the sand at 4,395 feet. The 9⅝-inch casing is cemented at 4,357 feet. Vacuum's Nos. 3 Bayou D'Inde and No 9. Miller are preparing to work over. No. 15 Miller, another former well, is drilling sticky shale at 4,707 feet.

Jennings—Acadia Parish

Yount Lee Oil Co.'s No. 6 Housierre-Latrielle, a deep east side wildcat, is drilling below 7,130 feet. This company's No. 4 Crowley is drilling sand and lime at 6,986 feet. These two are the deepest holes ever drilled on the Gulf Coast.

Vinton—Calcasieu Parish

Rex Petroleum Co.'s No. 2 Lyons, an old well deepened, has been abandoned at 4,449 feet. Salt Dome Oil Co.'s No. 2 Grace Shaw is drilling at 956 feet. Marrs McLean's No. 4 Gray is drilling at 1,542 feet, and Gulf Refining Co.'s No. 32 Star-Vincent is down 3,595 feet. The latter's No. 68 G.&N.G. is drilling at 2,781 feet.

Miscellaneous Fields

At Bayou Bouillon, St. Martin Parish, Rycade Oil Corp.'s No. 7 Bouillon fee is drilling sandy shale at 3,703 feet. This company's No. 3 Louisiana State is drilling hard lime at 2,720 feet. Gulf Refining Co.'s No. 14 United Land Co., Sorrento, Ascension Parish, is drilling at 3,506 feet. This company's No. 13 Industrial, Starks, Calcasieu Parish, is drilling at 4,927 feet, and its No. 15 Lutcher-Moore is down 4,633 feet. Pure Oil Co.'s No. 7 Yount Lee Oil Co. is fishing at 5,426 feet.

MISCELLANEOUS WILDCATS

Texas

Austin County—Flanigan & Mewis' No. 1 A. E. Mewis, Stevenson Survey, east of Bellville in the Raccoon Bend district, is drilling sand at 3,509 feet. Whittington and associates' No. 1 Lass, northwest of Bellville, is rigging up.

Brazoria County — Shell Petroleum Corp.'s No. 4 Allen, Allen Dome, which, at a total depth of 5,154 feet, has drill stem stuck, is yet trying to sidetrack. Meyers and associates' No. 3 Davidson, Clemens, is drilling shale at 929 feet. Empire Gas & Fuel Co.'s No. 3 Brock, Stratton Ridge, is drilling gumbo at 2,936 feet. Humphreys Corp.'s No. 1 Bryan, Bryan Mound, is waiting cement to set to test an oil showing at 3,050 feet.

Chambers County—Pure Oil Co.'s No. 2 Mayes, Lost Lake, is drilling sand and shale at 1,925 feet. This company's No. 3 Mayes is drilling sand, lime, shale and shell showing some oil at 1,871 feet.

Fort Bend County—Gulf Production Co.'s No. 15 Wolf, Long Point, drilled into gyp and has been abandoned at 656 feet. Humble Oil & Refining Co.'s No. 1 Miller, Rosenberg prospect, is rigged up and ready to spud. South Texas Petroleum Co.'s No. 1 Winkleman, Needville, is drilling blue gumbo at 4,430 feet.

Harris County—Humble Oil & Refining Co.'s No. 1 Irvin, Mykawa, is fishing at 3,810 feet. This company's No. 5 Warren at Hockley is drilling hard, sandy shale at 4,450 feet, and its No. 1 Woodburn on the Genoa prospect is rigged up and ready to drill.

Jackson County — The Texas Company's No. 1 Moore, D.&G.N. Survey No. 311, 16½ miles north of Edna, has been abandoned in shale at 4,987 feet. Wright Brothers' (now The Texas Company's) No. 8 Drushell, a location, has been abandoned.

Jefferson County — Gulf Production Co.'s No. 11 Thomas, Fannette, is waiting on 6⅝-inch casing cement to set at 5,180 feet. This company's No. 7 Bordages is drilling shale and lime at 5,438 feet. Nederland Oil & Development Co.'s No. 1 Young is drilling gumbo at 1,832 feet. Shell Petroleum Corp.'s No. 1 Heisig, Hampshire district, is drilling sticky shale and lime at 3,692 feet. The Texas Company's No. 1 Pipkin, Big Hill, has killed the gas and is drilling deeper in shale and sand at 5,943 feet. This well will not be tested at this level unless the gas gives further trouble and prevents drilling much deeper. Yount Lee Oil Co.'s No. 1 Nona Mills, Hillebrandt Survey, is in sand at 6,503 feet. Vacuum Oil Co. has completed building a road to its No. 1 Herbert-Broussard, T.&N.O. Survey No. 208, and a derrick will be built as soon as materials can be moved in.

Liberty County—Humble Oil & Refining Co. has completed setting up a rig for No. 5 Sterling, Moss Bluff. This is 600 feet east of No. 4, recently abandoned in salt. Republic Production Co.'s No. 1 Myslivec, north of Hardin, is in gumbo at 2,965 feet. The Texas Company's No. 2 Davis, Davis Hill, has been abandoned as a junked hole at 4,250 feet.

Matagorda County—Crossland and associates' No. 1 Hawkins, Shepherd's Mott, is washing at 5,260 feet.

Montgomery County—Harper Drilling Co.'s No. 1 Gay, W. Landrum Survey, is drilling shale at 1,896 feet.

Waller County—The Texas Company's No. 1 Young, Irons & Groce Survey, is drilling sandy shale at 3,495 feet.

SOUTH LOUISIANA

Ascension Parish—Gulf Refining Co.'s No. 14 United Land Co., southeast of the Sorrento Dome, is drilling at 3,508 feet. This company's No. 1 Belle Helene, Darrow Dome prospect, is in sand at 5,312 feet.

Calcasieu Parish— J. O. Davis' No. 1 Mims, Section 20-9s-7w, is drilling sandy shale at 3,167 feet.

Cameron Parish — Shell Petroleum Corp.'s No. 10 Watkins, Black Bayou,

has drilled plug at a total depth of 979 feet and late in the week was testing for shallow cap rock production. A location has been made for No. 11 Watkins, 200 feet south of No. 9, which found the first oil at this dome several weeks ago and which now is waiting to be put on the pump. The Texas Company's No. 3-A Calcasieu Lake, Calcasieu Lake Dome, is drilling sand and shale at 3,008 feet.

Iberia Parish—The Texas Company's No. 3-A Vermillion Bay is fishing at 4,694 feet. Gulf Refining Co. is spudding in on No. 9-Z State. Loreauville. This company's No. 1 Moresi, same field, is drilling below 3,821 feet.

Iberville Parish — Shell Petroleum Corp.'s No. 3 Wilbert, White Castle, is drilling coarse sand at 4,071 feet. Standard Oil Co.'s No. 2 Wilbert, Bayou Blue, is drilling gumbo at 2,141 feet. This company's No. 1 Schwing, same dome, is in sand at 4,572 feet. Nos. 3 Wilbert, 2 Schwing and 5 Schwing are rigged up. Nos. 3 and 4 Schwing are locations.

Plaquemine Parish—The Texas Company's No. 1 Garden Island Bay, 15 miles southeast of Venice, is drilling rock at 1,600 feet. Gulf Refining Co.'s No. 1 Morris & Rose, Spanish Pass, is standing.

St. Landry Parish—The Texas Company's No. 2 Botney Bay, Point Barre, is drilling gumbo at 1,943 feet. Gulf Refining Co.'s No. 1 Gaudett is drilling at 1,145 feet.

St. Tammany Parish—St. Tammany Oil Co.'s No. 2 Fritchie, Section 35-8s-14e, is drilling gumbo at 1,464 feet.

Tangipohoa Parish—Joan Development Co.'s No. 1 Hilton, Section 20-5s-9e, is drilling shale at 2,019 feet.

Terrebonne Parish—The Texas Company has started drilling on another one of its new salt dome prospects recently taken over from the Louisiana Land & Exploration Co. This is No. 1-A Timbalier Bay, which at present is shut down at 160 feet. The Texas Company's No. 1-B Bay Coon Road has set 9¼-inch surface casing. This company's No. 1-A Dog Lake Bayou is coring around 900 feet.

LOUISIANA-ARKANSAS

(Continued from Page 54)

waiting for standard rig for almost a year.

Simmons and others' No. 1 Green, Section 3-16-16, Smackover (Union County), was dropped from the list as a salt water hole at 2,335 feet, where it had been standing since November with 1,000 feet of water showing a small percentage of oil. The old El Dorado district appeared with Standard Oil Co.'s No. 5 Burns, Section 31-17-15, pumping 15 bbls. of oil and 85 bbls. of water from 2,255 feet.

In connection with the above report on Mount Holly developments, C. H. McDonald's No. 1 Wilson, Section 25-15-18, the discovery well, is pumping 200 bbls. of fluid 10 per cent water, still the best well in the district, and McDonald Brothers' No. 1 Wilson, the second producer, is pumping 40 bbls. 5 per cent water. Root Refineries' new completion is pumping 50 bbls. 4 per cent water.

Ohio Oil Co. made a drill stem test on No. 2 Adams, Section 7-17-13, at 2,994-3,007 feet, and got 3,000,000 feet of gas and will make a few feet more hole. Location is midway between original production in the eastern extension of Champagnolle and the Ohio's southwestern extension of that part of the field, and the gas is considerably more than any other well in the vicinity has shown. No. 1 Lynn, a half-mile east and a quarter mile south of nearest production, made 15 fourbles of oil on drill stem test of 12 feet of broken sand, total depth 2,077 feet, and set 6⅝-inch pipe at 3,065 feet for completion. Bailey & Trimble immediately made location in the northwest corner SW SE SE Section 7-17-13 for an offset on the El Dorado Realty Co. land.

As a detail of its program for increasing its crude supply, Lion Oil Refining Co. bought Speith Pipe Line Co. of El Dorado for $20,000. Properties conveyed consist of 1 mile of 6-inch and 2 miles of 4-inch in the Smackover Field leading to two 55,000-bbl. tanks, also conveyed, and a 24-car loading rack.

NORTH LOUISIANA

Bossier Parish

Elm Grove—Woodley Petroleum Co. is arranging to run 4½-inch on No. 4 Whitehurst, Section 35-16-12, total depth 2,422 feet.

Caddo Parish

Greenwood—Eastern Carbon Co.'s No. 4 Bryson, Section 8-17-16, drilled 6-inch plug, blew out with an estimated 5,000,000 feet of gas. They are trying to kill and set liner from 2,330 feet, total depth 2,773 feet.

Dixie—Gulf Refining Co. is drilling below 100 feet on No. 1 Oden, Section 18-19-14; No. 2 on same lease is on a rock at 150 feet. Ohio Oil Co. is rigging up on No. 1 Hunter, Section 17-19-14. No. 2 on the same lease is a derrick, 330 feet north and east SW cor. NE NW, same section. Standard Oil Co. set 140 feet of 10-inch and is drilling at 500 feet on No. 2 Hunter, Section 8-19-14; No. 4 Hunter, Section 17-19-14, and No. 1 Oden, Section 18-19-14, are rigging up.

Oil City—W. D. Chew, deepening No. 5 fee, Section 33-21-16, completed July 1 last year pumping 20 bbls. from 1,847 feet, cemented 6-inch at 2,180 feet. Gulf Refining Co. is drilling below 100 feet on No. 16-A Levee Board, Section 34-21-16. Magnolia Petroleum Co. is drilling sandy lime at 3,004 feet on No. 18 Doan-Thigpen, Section 6-20-15, and has rig up for No. 4 Levee Board in Section 7-20-15. C. B. Moore set 6-inch at 2,150 feet on No. 5 Dillon, Section 22-20-15.

Pine Island—Dixie Oil Co. was bailing at 5,300 feet to test No. 92 Dillon, Section 13-21-15, total depth 6,124 feet; No. 3-B Slattery, Section 21-21-15, cemented 6⅝-inch at 1,400 feet.

LaSalle Parish

Urania—Arkansas Natural Gas Corp. is arranging to make a drill stem test on No. 12-B Urania, Section 17-10-2e, at 1,534 feet.

Monroe District

Morehouse Parish—Natural Gas Producing Co. set 6-inch at 2,175 feet on No. 24 Crossett, Section 25-21-4, and is drilling gas rock at 2,200 feet on No. 14 Tensas, Section 4-22-4. Southern Carbon Co.'s No. 2 Griffing, Section 10-20-4, is drilling shale and boulders at 1,885 feet; No. 10 Tensas, Section 2-20-4, set 156 feet of 12½-inch and 807 feet of 8-inch.

Ouachita Parish—Interstate Natural Gas Co. is bailing casing on No. 3 Hunter-McCormick, total depth 2,148 feet, and on No. 4, total depth 2,115 feet; No. 5 in Section 40-20-3e, cemented 6-inch at 2,155 feet. G. E. Jordan's No. 1 Anding, Section 18-18-5, is drilling boulders at 1,860 feet. LaDel Oil Properties, Inc.'s, No. 47 fee, Section 6-19-5, is drilling gas rock at 2,185 feet. Magnolia Petroleum Co. made location 550 feet south and 250 feet west NE cor. Section 2-18-3, for No. 1 fee; No. 2 U. S., Section 30-19-5, is drilling packed sand at 1,871 feet and No. 3 U. S. in Section 18-19-5, set 8⅛-inch at 2,110 feet.

Nemours Corp. set 150 feet of 12-inch and 950 feet of 8-inch on No. 3 Frierson, Section 18-19-4. Ouachita Natural Gas Corp.'s No. 2 Sandidge-Patton, Section 11-20-4, is drilling shale and boulders at 1,830 feet. Peerless Carbon Co. is drilling gumbo at 1,510 feet on No. 5 Moore, Section 51-20-4. Pioneer Oil & Gas Co. cemented 6-inch at 2,240 feet on No. 1 Fudicker, Section 18-18-5. United Oil & Natural Gas Co. set 181 feet of 12-inch and is drilling at 808 feet on No. 4 Guthrie, Section 49-20-4. West Virginia Oil & Gas Co. has rig up for No. 7 West Virginia, Section 5-18-4.

Union Parish—Imperial Oil & Gas Products Co.'s No. 1 Pullen, 108 feet north and 76 feet east SW cor. Section 20-20-4, set 205 feet of 12-inch, 766 feet of 8-inch and is drilling at 1,848 feet. Natural Gas Producing Co. set 12-inch at 185 feet and is drilling at 800 feet on No. 2 Hale, Section 14-21-3; No. 1 Hollis is a location 1,980 feet south and 660 feet west of the center of Section 14-21-3.

Red River Parish

Gulf Refining Co. has begun drilling No. 1 Kennedy, Section 24-13-11, and is drilling oil sand at 2,500 feet on No. 38 Robinson, Section 25-13-11.

Richland Parish

S. R. Humble is drilling No. 1 Etheridge, Section 28-17-6, at 933 feet. Magnolia Petroleum Co.'s No. 2 McCoy, Section 29-16-6, set 250 feet of 15½-inch and is drilling at 567 feet; No. 2 C. M. Noble, Section 30-16-5, has rig up. Southern Carbon is drilling No. 1 Tegola, Section 4-15-6, at 1,946 feet.

Sabine Parish

Pleasant Hill—Arkansas Natural Gas Corp. is running 6⅝-inch casing, total depth 3,300 feet.

Webster Parish

Cotton Valley—Louisiana Oil Refining Corp. cemented 6-inch at 4,300 feet on No. 3 Nelson, Section 28-21-10. Magnolia Petroleum Co. tested 1,500,000 feet of gas at 4,579 feet on No. 1 Ira Cox, Section 23-21-10, and will go deeper; No. 1 McCook R. Hibbler, Section 22-21-10, cored lime at 5,387 feet; No. 5-A Robbins is a new location 560 feet north and 660 feet west SE cor. SE SW Section 21-21-10. Ohio Oil Co. is rigging up to drill No. 43 Bodcaw, Section 24-21-10. Palmer Corp.'s No. 5 Tillman, Section 27-21-10, cemented 12½-inch surface string at 455 feet.

Sarepta and Shongaloo—Magnolia Petroleum Co. is arranging for a drill stem test on No. 1 Adkins, Section 4-22-9, at 2,665 feet; No. 1 Cook, Section 2-22-11, tested salt water at 3,184 feet, corrected depth, and is in gummy shale at 3,189 feet.

EAST TEXAS

Harrison County

Nick Barbare set 43 feet of 10-inch and is drilling around 200 feet on No. 1 Saunders in the E. M. Jenkins Survey. Eureka Natural Gas Co. made location for No. 4 Vaughn in the W. R. Anderson Survey. C. H. Lyons and others set 42 feet of 8-inch for surface string and are drilling at 1,000 feet on No. 2 M. M. O'Bannion. H. D. McRitchie and others tested salt water at 945 feet on No. 1 Crofts, F. L. Merriweather Survey, and are drilling at 1,000 feet.

Panola County

Adams & Walker's No. 5 Adams, James Matthews Survey, is drilling at 2,485 feet. Eureka Natural Gas Co. cemented 6-inch at 2,621 feet on No. 4 Gully, James Matthews Survey and made location for No. 1-B M. E. Gully in the same survey. Magnolia Petroleum Co. cored lime at 2,696 feet on No. 3 Adams, James Matthews Survey; No. 4 Baker in the B. C. Jordan Survey, was dry at 3,101 feet, pulled liner and plugged back to 2,350 feet and is arranging to test; No. 3 Fletcher in the same survey was dry at 2,547 feet and cored shale at 2,612 feet. Natural Gas Producing Co. made location in the B. C. Jordan Survey for No. 5 Floyd. The Texas Company set two joints of 10-inch and is drilling at 150 feet on the No. 10-A Adams in the Thomas Cox Survey. D. Thomason made location in the B. C Jordan Survey for No. 13 Crenshaw.

ARKANSAS

Johnson County

Arkansas Natural Gas Corp. is arranging to set 7-inch casing at 2,990 feet on No. 2 Bynum, Section 12-10-24. No. 1 McPherson, Section 10-10-24, opened for 10 minutes after being shut in for three days after showing gas at 3,455 feet, gauged 9,759,750 feet of gas at 390 pounds.

Ouachita County

Mount Holly—Cumberland Oil Co. did not abandon No. 1 Burton, Section 24-15-18, after testing salt water at 2,870 feet but drilled on to 2,937 feet where it has a fishing job for drill stem and core barrel. Magnolia Petroleum Co.'s No. 1 Wilson, Section 25-15-18, is coring at 3,083 feet.

Smackover—Phillips Petroleum Co. has rig up for No. 1 W. M. Scott, 150 feet north and east SW cor. SW NE, Section 34-15-15.

Union County

El Dorado—Gulf Refining Co. cored No. 1 Cook, Section 1-18-15, at 3,698 feet. Weisinger and others are rigging up to drill No. 7 Goodwin, 250 feet north and 200 feet east SW cor. SE, Section 31-17-15.

Champagnolle—Bailey & Trimble made location in the NE cor. SW SE SE, Section 7-17-13, for No. 1 El Dorado Realty Co. Gann and others have rig up for No. 1 Doss in Section 10-17-14. H. L. Hunt is fishing for a lost bit on No. 7 Gregory, Section 10-17-14, total depth 2,123 feet. Lion Oil Refining Co. has rig up for No. 1 El Dorado Realty Co., Section 7-17-13. Ohio Oil Co.'s No. 2 Adams, Section 7-17-13, is drilling at 2,650 feet; No. 1 Lynn, Section 7-17-13, tested 15 fourbles of oil from 10 feet of broken sand, total depth 3,077 feet, and cemented 6⅝-inch at 3,065 feet.

No. 1 E. Raulston, Section 12-17-14, set 165 feet of 10-inch and is drilling at 1,420 feet. Pure Oil Co. made location 330 feet north and west SE cor. NW SE, Section 7-17-13, for No. 2 Nash. Rovenger Oil Corp. skidded derrick from No. 2-B Perdue, abandoned as a salt water hole at 3,441 feet, and is rigging up 75 feet north on second hole. Rushing and others made location in the NW cor. SW SE, Section 7-17-13, for No. 1 Lynn.

LA.-ARK. WILDCATS

(Continued from Page 54)

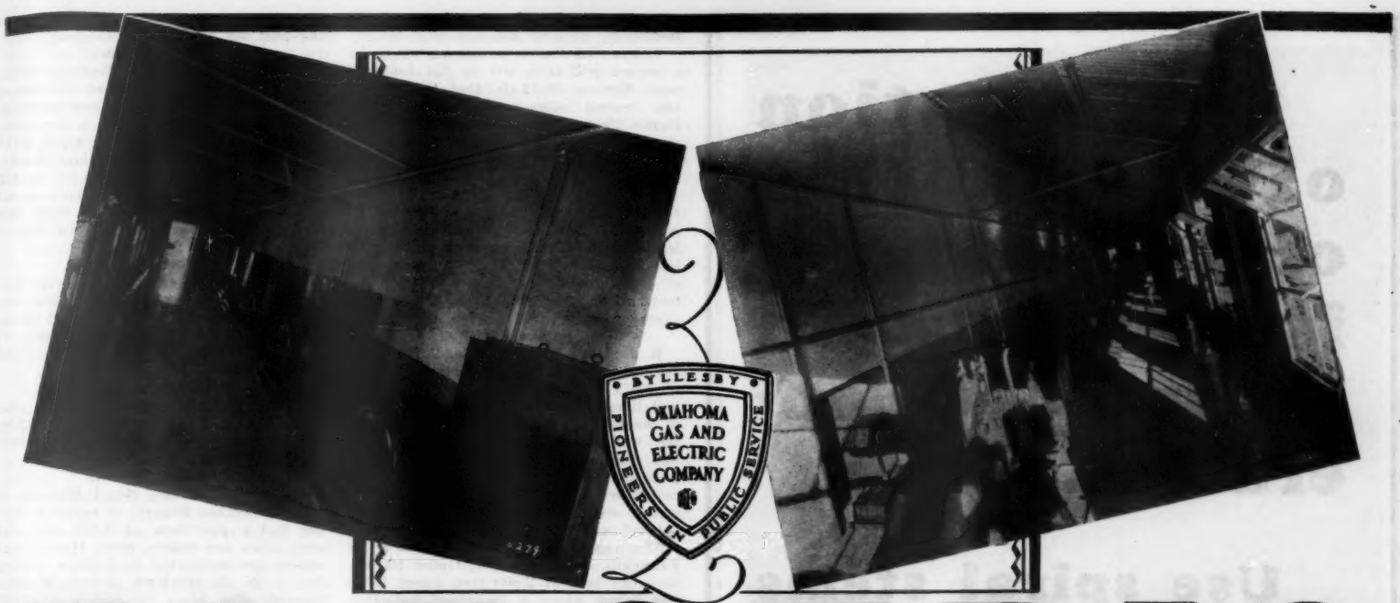
in Section 18-18-22, Columbia County, which is to be a 3,500-foot test. Location is about the center of a block of 5,000 acres the company has had for some time in Sections 7 and 8, 17 to 21 inclusive and 29 and 30-18-22; and in Sections 12, 13 and 24-18-23. Promising structural conditions were revealed by a half dozen or so wells drilled from time to time on and around this block during the past few years, one of which had a little oil in a substantial sand body at around 3,250 feet.

Another Columbia County block is being built by other interests centering around Section 22-18-19. Lenz and others, who have drilled and been interested in the drilling of a series of 8 wells in Miller County, Arkansas, are reported figuring on another deep hole in the northeast corner of Township 15, Range 26. In one of their wells they had 106 feet of sand in the red beds divided by two streaks of shale. Some of this sand showed oil on ether test, which is one reason why Lenz has persevered in his explorations during the past several years in the course of which he has spent probably $300,000 or $400,000 trying to develop a new oil field in Arkansas.

Southwest of Cartersville

Walker and others are running sand pump on No. 1 Antrim, Section 28-22-13, Bossier Parish, about 12 miles southwest of Cartersville production, in which there was a show of oil in 40 feet of broken formation, total depth 3,017 feet. When the show was tested it bailed dry but after standing over night fluid had risen 25 or 30 feet in the hole. This is an old well that has been under way for nearly 2 years, and during the past week or so two or three other wells that have been idle for some time were revamped.

Carlton Drilling Co.'s No. 2 Stevens in Section 12-11-16, DeSoto Parish, has been shut down for 2 months but is reported getting ready to standardize and pump from 10 feet of sand, total depth 2,046 feet. Similarly, Longstreet Syndicate is reported changing to heavier rig to deepen No. 1 Ramsey, Section 33-13-16, which has been shut down at 2,812 feet for a similar length of time. Rudesaele and others, however, finally abandoned No. 2 Nabors, Section 6-12-11, which tested dry at 1,241 feet in January and has been waiting orders ever since. Enochs and others, who shut down at 3,583 feet on No. 1 Curry, Section 39-11-12, Tensas Parish, in November, recently plugged back to 3,522 feet to cut



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off salt water and are drilling at 3,870 feet.

Eylers Oil Co. is arranging to make a second drill stem test on No. 1 Chaffraix, Section 30-12-10, Red River Parish, several miles south of the Bull Bayou Pool. It set 4-inch with packer on top of the gas rock at 1,029 feet and tested 142,000 feet of gas at 1,032 feet. The second test will be 9 feet deeper, at 1,141 feet. Austin & McDonald got a second show of gas in No. 2 Millsaps, Section 17-17-6, Richland Parish, a mile north of production, but will go deeper. The first show was at 2,440 feet and the second at 2,490 feet, about 40 feet deeper than the average producer in proven territory.

Sabine Parish

R. L. Gay shut down No. 2 Bowman-Hicks, Section 14-7-14, Sabine Parish, at 3,621 feet in lime and pulled tubing and liner on No. 3 in the same section to wash and reset at 2,178 feet, where the well produced 10 or 15 bbls. per day through a choked liner. No. 1 Long-Bell, Section 26-8-14, pulled 10-inch casing set at 101 feet and reset surface string with 12½-inch at 250 feet to cut off a fresh water flow. Carter & Collins abandoned No. 1 Harditner & Tannehill, Section 9-6-1w, Grant Parish, as a dry hole at 2,809 feet, about 1,300 feet below where a "witcher" indicated they would find production. A prior well drilled on this location also was a failure.

NORTH LOUISIANA

Bienville Parish

W. G. Gray is drilling No. 1 Snyder, Section 15-16-6, at 700 feet.

Bossier Parish

Corbett and others set 8¼-inch casing at 907 feet on No. 1 Murff, Section 18-17-11. Triangle Drilling Co.'s No. 1 Fullilove, Section 11-17-12, is drilling at 800 feet. Walker and others are running sand pump on No. 1 Antrim, Section 28-22-13, which is showing a little oil from 3,017 feet, corrected depth.

Caddo Parish

Lide and others' No. 1 Glassell, Section 1-19-15, is drilling shale and lime at 2,368 feet. Humble Oil & Refining Co. and R. W. Norton are drilling red gumbo at 3,814 feet on No. 1 Fortner, Sectioa 32-21-16. Root Refineries' No. 1 Liebman, Section 12-19-15, is drilling at 2,100 feet. Simplex Oil Co. is rigging up to drill No. 1 Dickson in Section 33-20-14. Standard Oil Co. is rigging up to drill No. 1 Henderson, Section 1-19-14.

DeSoto Parish

P. J. Becker set 12-inch at 120 feet and is drilling at 990 feet on No. 1 Tull, Section 23-12-15, second hole. Carlton Drilling Co.'s No. 2 Stevens, Section 12-11-16, is waiting for standard rig to pump from 10 feet of sand, total depth 2,046 feet. Longstreet Syndicate's No. 1 Ramsey, Section 33-12-16, is changing to heavier rig preparatory to sidetrack and go deeper, total depth 2,802 feet. Magnolia Petroleum Co. is drilling shale at 2,216 feet on No. 1 Clements, Section 28-12-11.

Franklin Parish

Ruston Drilling Co. cemented 8-inch casing at 866 feet on No. 1 West Virginia Timber Co., Section 23-15-7.

Lincoln Parish

Shaw and others' No. 1 Voss, Section 1-20-3, is shut down at 2,740 feet, waiting orders.

Red River Parish

Eylers Oil Co. set 4-inch with packer on top of the gas rock at 1,029 feet on No. 1 Chaffraix, Section 30-12-10, tested 142,000 feet of gas at 1,032 feet, cored to 1,141 feet and is arranging to make another test.

Natchitoches Parish

Robeline Oil & Gas Co.'s No. 1 Cassady, Section 7-8-9, is shut down at 3,160 feet.

Richland Parish

Austin & McDonald's No. 2 Millsaps, Section 17-17-6, had another small show of gas at 2,490 feet. Northern Louisiana Natural Gas Co.'s No. 1 J. H. Hemler, Section 11-16-6, is in shale at 2,388 feet. Palmer Corp.'s No. 1 Miles is a new location 1,320 feet south and 660 feet east NW cor. NE, Section 11-17-6. Wilson and others have temporarily abandoned No. 1 Buie, Section 17-15-7, at 1,946 feet at which it has been shut down for the past six weeks.

Sabine Parish

R. L. Gay's No. 2 Bowman-Hicks, Section 14-7-14, is shut down in lime at 3,621 feet; No. 3, in the same section, pulled tubing and liner and is arranging to clean out and reset, total depth 2,178 feet; No. 1 Long-Bell, Section 26-8-14, pulled 10-inch surface string set at 120 feet and set 250 feet of 12½-inch to cut off a fresh water flow, total depth 620 feet. A. H. Tarver's No. 1 Long Bell is in hard chalk at 2,304 feet.

Tensas Parish

Enochs and others' No. 1 Curry, Section 39-11-12, shut down at 3,583 feet since November 29, has resumed work, plugging back to 3,522 feet to cut off salt water and is drilling now at 3,870 feet.

Union Parish

J. E. Cammatte drilled 6-inch plug from No. 2 Tugwell, Section 21-22-1e, and is shut down, total depth 1,848 feet.

EAST TEXAS

Red River County

D. M. Buffington's No. 1 Hossier, in the Ed Hughes Survey, is reported having had a gas show at 1,893 feet and shut down for orders. Shad Harper and others are arranging to resume drilling No. 1 W. R. Garland, Joseph Wrigley Survey, shut down for orders at 1,862 feet in February.

Shelby County

Gulf Refining Co. was drilling gray and brown lime with streaks of shale at 4,485 feet on No. 1 Carraway, W. H. Patterson Survey.

ARKANSAS

Ashley County

Atlantic Oil Producing Co. and others sidetracked drill stem at 2,178 feet and are drilling at 2,585 feet, total depth 2,790 feet.

Bradley County

Ohio Oil Co. is drilling red shale at 3,450 feet on No. 2 Southern Lumber Co., Section 19-16-9.

Columbia County

T. J. Bush and others are rigged up to drill No. 1 Jones, Section 5-17-18. Helena Oil & Gas Co.'s No. 1 Pickler, Section 19-19-22, is drilling lime at 2,650 feet.

Drew County

Ohio Oil Co.'s No. 1 Jerome, Section 13-15-4, is drilling at 3,070 feet.

Logan County

Arkansas Natural Gas Co.'s No. 1 Hanna, Section 26-7-23, is cleaning out under 10-inch casing at 2,200 feet, total depth 2,285 feet.

Nevada County

C. F. Steele is drilling No. 1 Groves, Section 21-14-20, at 2,066 feet in lime.

Ouachita County

Mount Holly — Arkansas Drilling Co. set 12½-inch at 120 feet on No. 1 Crowley, Section 27-15-18, tested salt water at 1,632-28 feet and is drilling at 1,680 feet. Timberlake and others cored No. 1 Wright, Section 25-14-18, at 2,350 feet.

Union County

W. M. Coats' No. 1 McDuffie, Section 32-19-17, tested salt water at 2,118 feet and is reaming to bottom, total depth 2,185 feet. Lion Oil Refining Co.'s No. 1 Stowe, Section 4-17-13, is shut down at 3,313 feet waiting orders. J. O. Moore is coring No. 1 Union Sawmill, Section 11-18-12, at 3,075 feet.

MICHIGAN FIELDS

(Continued from Page 59)

at 1,682-86 feet. The Melbohaco Oil Co.'s No. 1 A. B. Cook, NW NW Section 22-10-16, Muskegon Township, is pumping about 20 bbls. a day in the upper Traverse at 1,737-46 feet. It is about half a mile west of the new Continental well.

The largest of the new gassers is the Dixie Oil Co.'s No. 8 Fred W. Figge, NW SW Section 9-10-16, which had the gas at 1,860-70 feet in the lower Traverse and was gauged making 10,000,000 feet a day. It is a west offset to the Lima Oil Corp.'s No. 2 Margaret Figge. The Lima Oil Corp. drilled No. 3 Margaret Figge into the Dundee gas and got a flow of 3,500,000 feet at 2,003 feet. It was

originally a 750-bbl. upper Traverse well. The Shoup Oil & Gas Co. completed its No. 4 on the George H. Shoup lease, NW NW Section 8-10-16, for an open flow of 6,000,000 feet of gas in the Dundee at 2,005-08 feet.

New Locations

Six permits for new locations, three in Muskegon and three in Laketon Township, were taken out: Muskegon Oil Corp.'s No. 3 John Torrent, SW SE Section 8-10-16, and No. 4 Stanley Daniloff, SW SW Section 5-10-16; John R. Cox of Grand Rapids for a well on the James Dow property, SW SE Section 5-10-16; Johnson Oil Refining Co. in Laketon Township, for No. 13 John Thompson, S WNE Section 12-10-17, and No. 3 Grotefeld, NE NE Section 12-10-17; and Dixie Oil Co.'s No. 7-D Kate McLaughlin.

The twelfth dry hole among Muskegon County wildcats was completed in the Dundee in the Eureka Oil Co.'s No. 1 Jane Featherstone, SW SW, Section 35-11-16, Dalton Township. It may be drilled deeper.

Two Oceana County wildcat wells, one on the east and the other on the west side, were reported dry in the upper Traverse. Edward DuVall, who has drilled two other dusters in Golden Township, southwest of Hart and Mears, struck salt water in his No. 1 Field, SW NE, Section 31-15-18, in the upper Traverse sands at 1,600 feet. Salt water was struck in the Decem Development Co.'s No. 1 T. Veenstra, SW SE, Section 26-13-15, Greenwood Township, at 2,153 feet. Both wells will be carried to the Dundee.

A rig is moving in for a new location in the southeast quarter of Section 28-15n-14w, Beaver Township, Newaygo County, to be drilled by the backers of the Sankey Oil & Gas Co., of Hesperia. Drillers also are building rig for the Hesperia Petroleum Co.'s No. 1 Walter Jones, NE SE, Section 20-14-14, Denver Township, Newaygo County.

Operators are engaged in an extensive leasing program in Van Buren, Berrien and Cass Counties near the southwest corner of the State. Royal R. Miller, of Muskegon, is preparing to drill in Cass County while the Wolverine Oil & Exploration Co. is blocking acreage in Van Buren County. The Ottawa Petroleum Co. and the Crude Oil Co. of Michigan also are interested in new leases in Van Buren County. A show of oil encountered in a wildcat near Decatur has stimulated activity near the Indiana line.

The Pure Oil Co., which opened the Mount Pleasant Field, got a third dry hole in the Dundee formation. No. 1 Mode, NW SW SW, Section 20-14-2, Greendale Township, Midland County.

Six new locations, four made by the Pure Oil Co., were announced: No. 1 Fox, NE NE, Section 13-14-3, Chippewa Township, Isabella County; No. 2 Fox, SW NE, Section 13-14-3; No. 2 Sarah Roebuck, NE NW, Section 13-14-3; and No. 3-A Glenn M. Reems, SW SE, Section 12-14-3. J. C. Arthurs' No. 1 Weidman, NE SW, Section 12-14-3; and the Leonard Oil & Gas Co.'s No. 2 Virgil McClintic, SE SE, Section 11-14-3, both in Isabella County, have started drilling.

Material has been moved in for the erection of a rig on the Meyers farm in Section 5, Coe Township, Isabella County, where the Athens Oil & Gas Co. have announced an important new test.

SOUTHWEST WILDCATS

(Continued from Page 57)

Bee County gas field, (the first production in that county) lie in the middle strip of counties between the Coast territory and the Balcones Fault zone.

Milam County

Rogers & Heap in Milam County, north of the Michalk & Clark No. 1 Johnson that bailed 50 bbls. of oil, tested dry at 1,830 feet and is deepening. The well seems to be running about 120 feet high and has this advantage. It will deepen a little at a time and keep testing but if the Taylor marl does not pay off will be carried to the Edwards.

Crown Petroleum Co.'s No. 1 Hattenbach is down 1,717 feet at Nopal in southern Gonzales County and in hard rock. It is only now getting to the depth where it is expected to begin picking up. It had favorable shallow showings.

There are to be a half dozen or so tests out around Devine in southeastern Medina and southwestern Bexar Counties. A land company was about to divide up its stuff and sell it off in small tracts. It decided to call in a geologist and see what was under the land before it sold it off for farms. The result is a number of tests will be made. One test is by the Balcones Oil Corp. a couple of miles due east of Lytle in Bexar County which spudded in late last week. Donaldson Oil Development Co. will drill one just north of Devine, and Zigzag Oil Co. one a few miles northwest of Devine.

Blanco County

After several months shut down Robert Rodson is back at work on his No. 1 Glasscock in the center of Blanco County, the first test ever drilled in the county and the first to get an oil showing. He gave the well a light shot and is now working to clean it out and make a test of it.

United North & South abandoned No. 1 Gideon in the old Luling Field in Caldwell County at 4,800 feet in schist. Two other wells were carried down fully 3,000 feet into the schist. North & South sold off everything down to and through the Edwards lime to Magnolia and is now trying to locate a test that will get into the Trinity.

Starr County

Ohio Oil Co.'s No. 1 Bass, Porcion 76, Block 71, is drilling. U. S. Oil & Gas Co.'s No. 1 Kelsey, Porsion 76, Block 11, located 1,500 feet north line, 500 feet west line, is standing at 900 feet. The Texas Company's No. 1 V. C. de Guerra, Porcion 68, Share 92, located 600 feet east line, 6,280 feet south line, is drilling at 2,560 feet.

Webb County

G. S. Lumpkin's No. 1 H. Yeager, Porcion 33-34-35, Block 17, is location 1,170 feet east line, 150 feet south side. L. W. Nelson's No. 1 Moglia, Survey 672, located 150 feet east line, 2,584 feet south line, at 2,550 feet tested 7 trebles salt water, and is shut down to work on rig. Usher Carson's No. 2 D. Benavides, Survey 1,613, Block 11, located 150 feet north and west lines, set casing at 934 feet after testing little gas at 934-36 feet.

Zapata County

William Muchelroy, Jr., No. 1 Trevino, Survey 412, Block 25, is drilling at 100 feet. National Oil Co.'s No. 1 Don B. Adams, Section 11, Block 4, is in hard rock at 615 feet. John Pappas' No. 1 Cuellar, Porcion 33-34, Block 5, located 333 feet northeast lines, 194 feet southeast lines, is drilling at 1,150 feet. R. V. Hill's No. 5 Ramirez, Survey 627, located 400 feet northeast and northwest lines, is standing at 1,395 feet.

Atascosa County

Amphion Oil Co.'s No. 1 Sam Schlisser, Farm B, 300 feet northeast lines, 600 feet southeast lines, is drilling at 2,000 feet.

Bastrop County

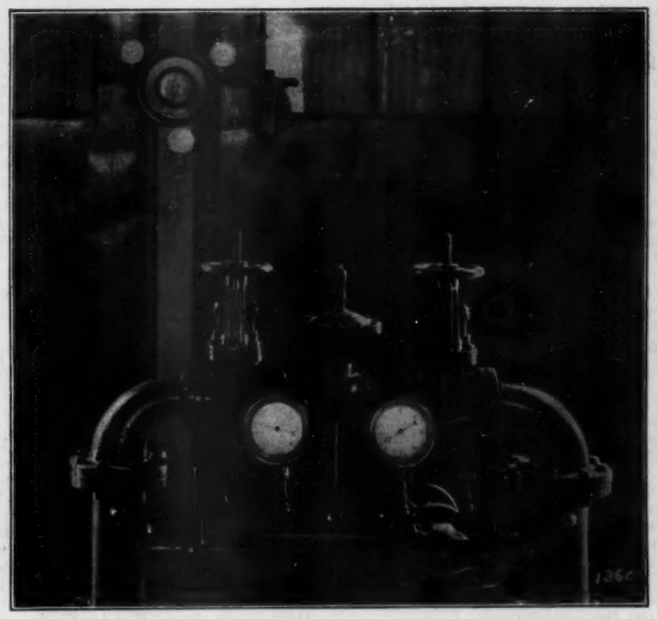
Gypsy Producing Co.'s No. 1 Lottman estate is drilling at 2,567 feet. Gulf Production Co.'s No. 2 W. N. Bell, Riley Survey, is location, west central part of lease. Howell Oil Corp.'s No. 1 F. Wichman, 2 miles from Page, is setting 32 feet of 10-inch surface casing. E. W. Ogden's No. 2 M. M. McCall, Stephen F. Austin Survey, 50 yards west of No. 1, is drilling at 2,760 feet.

Bexar County

Humble Oil & Refining Co.'s No. 2 Oppenheimer, J. M. Urriegas Survey, 300 feet north of No. 1, is still fishing. Indian Creek Oil & Gas Co.'s No. 1 Wolfsohl, J. A. Navarro Survey No. 5, at 1,597 feet is unable to bail dry. W. M. Morgan's No. 1 H. L. Martin is at 700 feet drilling deeper. Moore-Jauer's No. 1 Holly R. Ellison, T. York Survey, 2,916 feet east line, 1,500 feet south line, is standing at 1,198 feet.

Blanco County

C. W. Bates' No. 1 Herman Massey, Henry Manton Survey, 920 feet north line, 660 feet east line, is standing at 214 feet. Robert A. Rodson's No. 1 Glasscock, Survey 50, located 150 feet CEL,



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is to resume drilling at 962 feet. H. J. Uhl and C. E. Seldman are making location on block adjoining Johnson City.

Brooks County

Milam Drilling Co.'s No. 2 Riley Allen, Block 89, is drilling at 650 feet.

Calhoun County

B. F. Thompson's No. 1 Thomas, John P. Tully Survey, 910 varas north, 5 minutes 30 seconds west of north corner of John C. Post Survey, is to deepen from 2,748 feet.

Caldwell County

Alexander & Smith's No. 1 J. A. Cardwell, J. P. Bell Survey, 150 feet south and west lines, is drilling at 1,460 feet in chalk. C. E. Ellzey's No. 1 Taylor is to be temporarily abandoned with rig left standing. Russell's No. 1 Hill, McCullough Survey, is standing at 547 feet. Whittington and others' No. 1 J. G. Horner, Francis Berry Survey, at 1,320 feet is moving in larger rig.

Edwards County

A. M. Griffith's No. 1 Wardlaw, Section 60, Block V8, located 1,050 feet west line, 150 feet south line, is drilling at 1,550 feet.

Fayette County

Marshall & Moore's No. 1 John A. Kerr, M. Muldoon league No. 5, located about 250 varas to north line and little west of center, is drilling at 2,364 feet.

Goliad County

Humble Oil & Refining Co.'s No. 1 Reitz, 3 miles north of Goliad, is down 1,190 feet and drilling.

Gonzales County

Alexander & Smith's No. 1 Billings, G. Gwinn Survey, NW cor., is drilling at 600 feet. Joe Bruner's No. 1 Miller, Richard Heath Survey, 3,040 feet north line, 200 feet east line, is drilling at 2,546 feet with core showing oil and gas with spots of green sand. Crown Petroleum Co.'s No. 1 Hattenbach, James Jones Survey, 900 feet east lines, 200 feet south line, is drilling at 1,500 feet. W. D. Flynn's No. 1 Wilhausen, S. Bateman Survey, east central part, is shut down at 5,212 feet. Finnell & Elam's No. 1 J. Robinson, 5 miles north of Waelder, has been spudded in. Linderman Brothers' No. 1 F. H. Frampton, Richard Heath Survey, 2,120 feet north line, 1,930 feet east line, at 1,000 feet is rigging up to run night and day. W. G. Malone's No. 1 D. G. Staton, J. M. Salinas Survey, is shut down. Frank Sorrell's No. 2 Wilkenson, 100 feet west of No. 1, at 174 feet had good showing before going into salt water.

Guadalupe County

A. G. Kiffer's No. 1 B. B. Dix, Ira Nash Survey, 610 feet north of road, 320 feet east line, is standing at 1,050 feet. Magnolia Petroleum Co.'s No. 1 Ed Adams, Samuel Highsmith Survey, 150 feet C SW lines, is drilling at 100 feet. Miller Brothers' No. 1 Gib Springs. E. Cortari Survey, 450 feet west line, 775 feet south line, at 2,619 feet hit gas sand, cleaning out where hole caved 50 feet above. Eugene Sights' No. 1 C. Woehler, John King Survey, 310 feet north line, 210 feet east line, is standing at 2,404 feet. Tidal Oil Co. is making location in the Williamson Survey. Noonan & Conner's (formerly Trinity Drillers) No. 1 William Weinaug is building derrick.

Jackson County

The Texas Company's No. 1 W. C. Moore, Survey 208, at 4,000 feet is drilling with steam rig. Wright Brothers' No. 2 Classen is shut down at 3,945 feet; No. 8 Drushell has derrick up.

Karnes County

Hurador Oil Co.'s No. 1 W. E. Porter, 6 miles south of Runge, is drilling at 1,500 feet, failing to make test below 1,400 feet. Scott Townsend's No. 1 Ruckman, northwest of Runge, has been spudded in.

Kendall County

A. D. Gibbs' No. 1 A. J. McCrocklin, 6 miles southeast of Sisterdale, is moving in and rigging up.

Kerr County

L. R. Page and others' No. 1 Real (formerly Neal), Block 15, Survey 2, is moving in tools, rig on the ground.

Kimble County

Carl L. Bryant's No. 1 C. E. Lambert is moving in the machinery. H. A. McLean's No. 1 Cannon, Section 741, located 330 feet south and east lines, is down 400 feet.

Kinney County

Lloyd Oil Co.'s No. 1 G. Bedell Moore Estate, Section 117, located 1,320 feet CNL, is shut down at 1,000 feet in Del Rio, hole full of water from 300 feet. Mardon Oil Co.'s No. 1 Jim Clamp, Section 1,492, Survey 346, is shut down at 2,540 feet showing oil.

LaSalle County

J. G. Nix's No. 1 Coleman, Survey 68, Block 4, located 150 feet north line, 500 feet west line, is rigging up.

Maverick County

Rycade Oil Corp.'s No. 3 Chittim, Section 116, Block 7, is drilling at 3,627 feet; No. 4 Chittim, Section 104, Block 7, is drilling at 1,900 feet; No. 4 Sullivan, Section 112, Block 7, is down 1,300 feet drilling.

Medina County

Balcones Oil Corp.'s No. 1 F. A. Jackle, Alexander Bailey Survey No. 184, located 300 feet north and west lines, is spudded in. California-Medina's No. 1 Rohte, Survey 1.012, is drilling at 3,426 feet. Rawdon & Hughes and others' have taken over F. M. Cline's No. 1 Bendele, Survey 593, and resumed drilling at 815 feet. Donaldson Oil Development Co.'s No. 2 Adams, 1,000 feet northeast of No. 1, is location. Lynch and others' No. 1 Mott is standing. Rawdon-Hughes and others' No. 1 Haegelin, Joseph Barnhart Survey, is location; No. 2 Bendele, Survey 593, is standing 937 feet. Cecil Switzer's No. 1 Zerr is fishing. T.N.T. Drilling Co.'s No. 1 Bendele, Survey 470½, located 150 feet west line, 500 feet south line, is drilling at 1,507 feet. W. W. Woodworth's No. 1 Reinhart, J. Hall Survey, 450 feet south and east lines, is reaming. Zigzag Oil Co.'s No. 1 San Antonio Sub. Irrig. Farms, Inc., 4 miles northwest of Devine, is drilling.

Milam County

J. M. Burkhead's No. 1 C. Weigmann, A. Pollard Survey, 1,075 feet north line, 450 feet west line, spudded in and shut down. E. L. Chapman's No. 1 J. M. Gilchrist, J. J. Acosta Survey, 150 feet north and west lines, is drilling at 1,650 feet. H. E. Elliott's No. 1 J. C. Moore is setting 30 feet of 10-inch surface casing. Groneman Brothers' No. 1 Dornhoefer is down 2,580 feet drilling. Rogers & Heep's No. 1 J. D. Duncan, J. J. Acosta Survey, 1,800 feet north line, 750 feet west line, is setting casing at 1,830 feet after taking heavily saturated core.

McMullen County

Matt Holman's No. 1 Shiner, Henry M. Brewer Survey, 7,515 feet south of river, 3,084 feet east line, is shut down 760 feet.

Nueces County

Pearson and others' No. 1 Bluntzer is shut down at 3,507 feet. R. & G. Corp.'s No. 1 Perkins is standing at 3,510 feet; No. 1 Roberts is location; No. 1 Ragland is standing at 3,003 feet. Nueces River Basin Development Co.'s No. 1 Allen, F. Farrier Survey, is drilling at 3,135 feet. F. P. Zoch's No. 1 Baldwin, Block 21, located 150 feet north and east lines, at 2,265 feet is preparing to core and test. F. P. Zoch-Texas Production Co.'s No. 1 Carver, same as No. 1 Nesloney, Caso Blanco grant, 1,050 feet west line, 150 feet north line, is drilling at 2,860 feet.

Refugio County

Blanco Creek Oil Co.'s No. 1 St. John, J. Scott Survey, 708 feet northwest lines, 3,074 feet northeast lines, is drilling at 3,240 feet. Mission Drilling Co.'s No. 1 Mitchell, south of Refugio, is at 4,210 feet with gas pressure of 900 pounds, some salt water from strata above causing a little trouble, but is being cemented off.

San Patricio County

Houston Gulf Gas Co.'s No. 3 Welder, north of Sinton, has been spudded in. George B. Pickett's No. 1 Whitworth, NW NW Section 60, is drilling at 3,190 feet nearly down to old depth.

Victoria County

Humble Oil & Refining Co.'s deep test in Nursery Field is setting surface casing at 176 feet.

CANADIAN FIELDS

(Continued from Page 61)

creased wet gas production. Illinois-Alberta Oils' No. 2, LSD 14, Section 12-20-3w5, is drilling about 95 feet in the lime at 3,645 feet.

McLeod Operations

McLeod Oil Co.'s No. 1, LSD 16, Section 1-20-3w5, is reported making around 115 bbls. from the lime. No. 4 is making 70 bbls. from the lower lime. Regent Oil Co.'s No. 1, same LSD, which has been making 100 bbls. while drilling, is being given a production test at 3,905 feet. Regent's No. 2, 400 feet southwest of No. 1, is reported spudded in.

Great West Oils' No. 2 will spud in next August on the New Black Diamond structure.

Royalite Oil Co.'s No. 17, LSD 13, Section 6-20-2w5, has been put in production in the deep lime at 4,034 feet and is making 175 bbls. a day. No. 6, LSD 16, Section 31-10-2w5, which had some production at 4,531 feet, is drilling deeper.

Home Oil Co.'s No. 1, LSD 10, Section 20-19-2w5, recently established a new production record for one day of 856 bbls. of crude naphtha.

Timbers are on location for Mercury Oil's No. 2, LSD 13, Section 4-19-2w5. Lowery Petroleums is hauling derrick timbers for two tests: No. 1 in NW Section 17-19-2w5 and No. 2 in SE Section 9-19-2w5. No. 1 adjoins Mayland's No. 1 on the west, and No. 2 adjoins Mercury's No. 1. Sunlight Oils' No. 1, Section 4-19-5w5, is reported working on derrick. Hargal Oils, Ltd., is preparing for a test on its 40-acre tract where No. 1 will be started 500 feet east of Home's No. 1. Imperial Oil, Ltd., will handle the drilling. Structure Oil & Gas Co.'s No. 1, Section 31-10-2w5, is working on derrick and is moving drilling equipment from Okotoks. Structure's No. 2 has been located on a 20-acre tract in Section 12-20-3w5, subleased from the McDougall-Segur Exploration Co. in the central section of the field. Structure's No. 3 will be drilled in N half LSD's 3-14, Section 34-18-2w5.

Twelve New Tests

Alberta Pacific Consolidated Oils, Ltd., of Calgary has announced an extensive program of new drilling calling for 10 tests in the Turner Valley and two in the border fields near Coutts. Contract has been let to Noble-Olsen Co. of Tulsa for two tests in LSD 5, Section 20-19-2w5, adjoining Northwest-Associated's No. 1. The first test will spud in before June 15 and No. 2 before July 15. Contract has been let to the Elliott Drilling Co. of Sunburst, Mont., for a well on the Red Coulee structure, west of Coutts, to spud in by July 15.

Commonwealth Petroleums' No. 2, S half LSD 7, Section 9-19-2w5, is working on 122-foot derrick. Noble-Olsen Drilling Co. of Tulsa has the contract, and a heavy duty rotary outfit will be used. Mr. Olsen recently flew from Tulsa to Calgary in his 5-passenger Buhl air sedan to superintend the preliminary work.

In the northern end of the Turner Valley Field, Model Oils' No. 1, LSD 8, Section 22-20-3w5, is drilling at 4,270 feet. The deep lime is looked for around 5,500 feet. Model's No. 2 will be a wildcat test 3½ miles south and west of the Calgary Power Co.'s plant at Sebee, north and west of the Morley Reserve test of Wabash Oils. Dome Oils has derrick completed for No. 1 north of United's No. 4. Freehold Oil Corp.'s No. 2, NW LSD 8, Section 20-19-2w5, is working on derrick in the south end of the field offsetting the Hargal acreage. Madison Oils' No. 3, LSD 7, Section 24-20-3w5, just north of United's No. 4, has cellar dug and is reported working on derrick.

Vimy Oils, Ltd. 7, Section 24-20-3w5, is building road preparatory to moving drilling equipment from Okotoks for a test. Hylo Oils' No. 1, LSD 12, Section 4-19-2w5, has cellar dug and is working on derrick. Roy Widney and associates have material and equipment on acreage in the central section secured from New McDougall-Segur Oil Co., to spud in early in June. Sioux City Oils, Section 1-20-3w5, had derrick up for a test south of the McLeod wells and offsetting Regent's No. 1. Director Oils, Ltd., have arranged for a test to be drilled by Pat Adams on acreage adjoining the Sterling-Pacific in the south end.

Greatest Activity in History

The field is at present witnessing the greatest activity in its history. In addition to tests actively at work last year, between 45 and 50 new tests have been located in the past few months, of which six are already drilling and about a dozen are working on derrick. New activity is most pronounced in the southern end, but there are a number of new tests in the central section, and interest is now shifting somewhat to the north. Practically all the close-in acreage is tied up, so outlying structures are receiving attention. Most of these are practically untested.

Bow Island Test

In the Bow Island forest reserve, Indian Oils, Ltd., of Vancouver has a test partly rigged up.

On the Waite Valley structure, Richfield Petroleums' No. 1, Section 35-20-3w5, has derrick up. Neil McQueen Syndicate of Calgary has subleased 1,000 acres from the Richfield Company and may also drill a test.

In the Morley Reserve area, Melbourne Oils' No. 1 is drilling at 2,100 feet with traces of oil in the cores. Wabash Oils' No. 1 is drilling in a hard formation at 2,116 feet with a steady flow of sulphur gas at 633 feet in the lime.

In the Highwood area, Warner Oils' No. 2, 700 feet southwest of No. 1 in Section 28-18-3w5, has spudded in.

High River Oilfields' No. 1, LSD 6, Section 34-18-29w4, is rigged up ready to spud in.

In the Skiff Field, southern Alberta, Imperial-Devenish's No. 3, LSD 11, Section 11-5-14w4, has been put on the pump for production tests. After drilling through 25 feet of sand in the Ellis the test got into the lime without making a drop of water. Bailing tests indicate a commercial producer, and some oil has already been shipped to the Imperial Oil refinery at Calgary, which will take the production. Dauntless Oils' No. 1 has been located in LSD 9, Section 36-61-5w4, 6 miles north-northwest of Devenish's No. 1 discovery well, and will start drilling about July 1. Location was made by O. G. Devenish and Dr. J. O. G. Sanderson of Imperial Oil, Ltd. The company has 10,000 acres of the Devenish holdings, including the entire Hendricks block. Treasure Oils' No. 1, LSD 16, Section 14-6-15w4, is getting ready to drill. Lion's Gate Oil Co. is reported moving in derrick timbers for No. 1 test, Section 33-16-15w4.

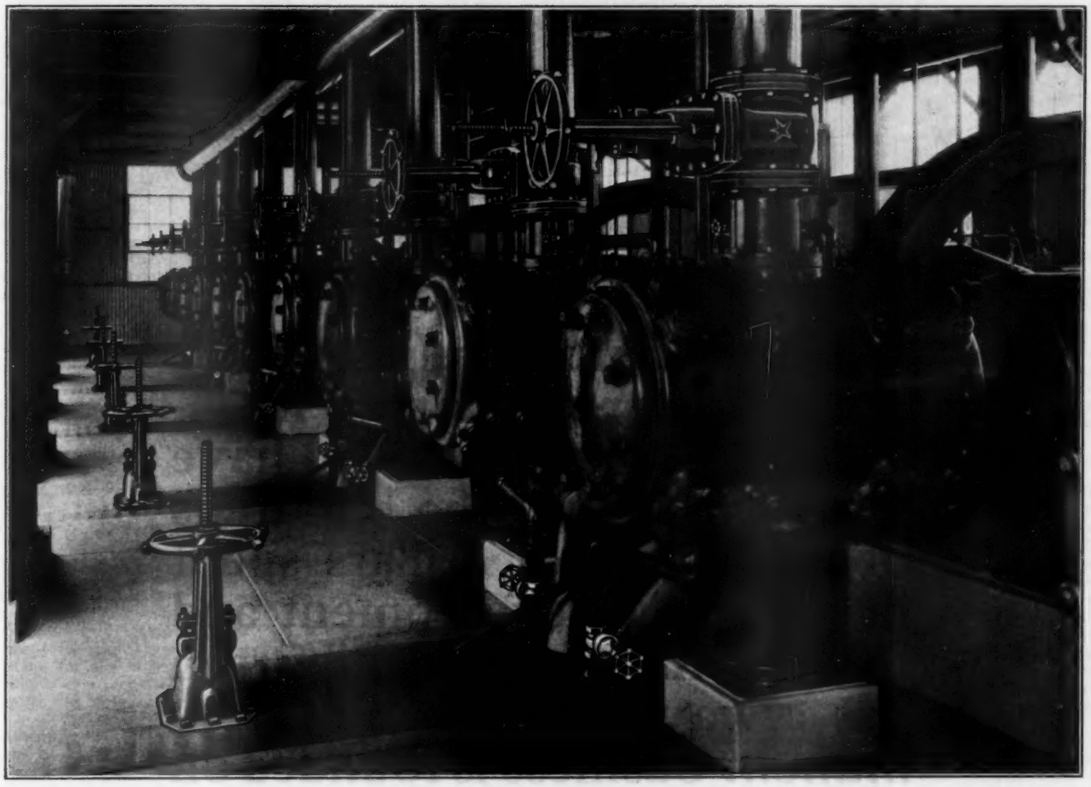
In the Milk River district, Capitol Oil & Gas Co.'s No. 2, LSD 4, Section 4-2-12w4, has spudded in, about 50 feet from the abandoned No. 1. L. C. Stevenson and associates of Montana are planning to drill on the Canadian end of the Flat Coulee structure. Sweetgrass Development Co., backed by Seattle capital, is planning to drill its No. 1 test in Township 2-11w4 this season.

Cypress Hills

In the Cypress Hills Field, Eagle Butte Oil Co.'s No. 1, LSD 3, Section 31-7-4w4, has resumed drilling at 3,340 feet after shutting off a 20,000,000-foot gas flow. The test will be carried to the Madison lime for oil. A second rig is being brought in for No. 2, 2 miles from No. 1. Alberta. In the Wainwright Field, east central Alberta, Wainwell Oil's No. 1, LSD 9, Section 36-44-7w4, has been carried to the lower horizon, getting a gas flow estimated 10,000,000 feet, with indications of good oil production. Hargal Oils, Ltd., has a new derrick up for a test 2 miles west of Wainwright,. This will likely be a deep test.

A rotary outfit is being brought in for Dome-Anwood's No. 2, to be drilled south of Wainwright. Sasko-Wainwright Oil & Gas Co.'s No. 1, LSD 1, Section 9-45-6w4, is delivering crude to the Associated Refineries, and the company is securing a rotary outfit to continue its drilling program. Trafalgar Oil Co. of Edmonton is planning to drill three wells this season on its Wainwright acreage.

(Continued on Page 168)



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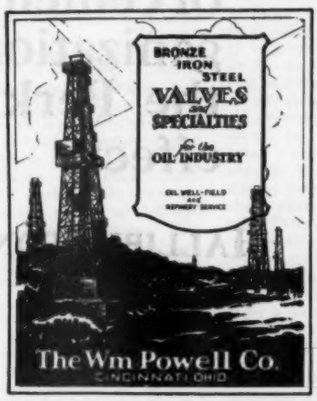

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Orders Follow Advance in Chicago

Large Gasoline Business Booked Towards Close of Week and Spot Demand Was Consequently Light Monday

By J. B. Waldo

CHICAGO, May 20. — As soon as the announcement was made of the proposed price increase of 1 cent a gallon over the Standard Oil Co. of Indiana territory, many refiners withdrew their quotations, but some continued to sell at the old price over Friday afternoon and Saturday. When jobbers heard of the proposed advance they began ordering. The result was there was quite a large gasoline business booked during the last days of last week. The spot demand was light today, Monday, many buyers who would have ordered this week having bought to take advantage of the lower prices quoted up to the close of business Saturday from several sources. The larger refiners and most of the sellers were quoting 8 cents as their price for U. S. Motor gasoline today, but there was some selling at an eighth to a quarter cent less than the 8-cent price. This was largely of cars in transit which were not moving freely and were therefore pushed quite actively with little result. One reason for the slow spot demand for immediate shipment was the return of cold weather to this locality and over considerable portions of the territory. There was a minimum demand for the higher gravities, prices for which were increased the same amount as U. S. Motor gasoline.

Cooler Weather

The demand for kerosene, while not really active, is still being felt and quite a number of orders were received, the general price being 5½ cents. The cooler weather resulted in a scattering demand for distillate, which was quoted a little higher by those who were able to make the prompt delivery required. There was no change in fuel or gas oils over the week end. The spot demand was uneven, scales scattering and there was a tendency to quote at very narrow margins by some dealers, while refiners are more firm in their views as to the value of their material. A more active gasoline market is expected later in the week as Memorial Day is close at hand, and this is one of the peak days of the year for gasoline consumption.

Fair Increase in Consumption

Reports regarding consumption over the territory generally served from this city are so spotted that about all that can be said is that they indicate a very fair increase over the entire area, some parts showing a remarkable gain and others doing little more than holding their own. Regarding its April business, one of the largest integrated companies which supplies gasoline to practically every part of the territory reports some divisions made a gain over last year of more than 25 per cent while others did not reach a 10 per cent increase. The gasoline sales for this organization in the territory during April increased a little more than 15 per cent, a vast quantity of gasoline of itself as the total sales are many millions of gallons.

Spot Buying Light

As for many months past the bulk of the demand for gasoline has been against contracts and the spot buying light by comparison. It is probably a fact that while the sale of gasoline in this market as a whole has shown a vast increase, the actual amount of business done with spot buyers is less than it used to be, as in the days not so far back practically all of the business was done on a spot basis. One thing that made the spot market much more active at least in appearance was the shopping around done by the large independent buyers. These old time buyers of 10 years back came to market with their idea of what they should pay for gasoline. Sometimes it took several days to secure their price, but they could wait and they usually bought at their figure. Nowadays the average jobber makes a contract with his refiner and his actual buying is over for 10 out of 12 months. Occasionally his gallonage exceeds his quota under his contract and that jobber may become for a time a spot buyer. Many of the jobbers require some extra material in the height of the season, but that time is ahead of the industry right now and the actual sales to spot buyers continue light.

The major refiners held their spot price for U. S. Motor gasoline at 7¾ cents for nearly two weeks with no real change. One of the major refiners stated last Monday that they had advanced their price to 7⅞ cents but would meet competition if necessary. No other refiners advanced the price above 7¾ cents and the price did not hold. Later in the week, the Standard Oil Co., Indiana, advanced its tank car price for gasoline to 7⅞ cents and these new and higher prices were considered as prophetic of the upward move in tank car prices. But all during last week there was considerable gasoline available at 7⅝ cents and at all times some—probably not a great amount of cars in transit or in the yards—that could be bought at 7½ cents for immediate delivery. This price was agreeable to spot buyers as they claimed that under the average of the contracts the price to the contract buyer was 7½ cents up to the time of the increase in the tank wagon. The cost of U. S. Motor gasoline to jobbers in this city on a straight contract with 4 cents protection figured 7⅝ cents, up to the tank wagon increase of 1 cent of May 18. This, some sellers claim, was the real reason why the gasoline prices have held at their recent level and why refiners were so very anxious for a tank wagon advance.

Contract Shipments Good

Shipments on contracts are very good and the great majority of jobbers are giving shipping instructions promptly and in only a limited number of instances asking that deliveries be delayed. The only reason given for practically all of such requests is weather conditions. Dealers continue to report they are carrying full tanks, but as few of the jobbers have storage for more than a limited supply, it would not take more than a week of good weather to bring the average jobber into the market for more material.

Tank Wagon Advance

The tank wagon advance announced as effective on Saturday gave the market a decided impulse toward higher prices and a larger movement and incidentally makes any supplies of material in dealers' or refiners' storage worth just that much more. The advance of 1 cent is expected to be repeated later in the season as the demand develops, and most in the local trade believe it was the one thing needed to make the summer season a success at the present time. The change was made just when the weather for the week end promised to be fine and it made a very considerable difference with the receipts of the jobbers all over the territory that it came before instead of following the week end. Refiners withdrew all tank car quotations with the news of the tank wagon advance.

The demand for the antiknock material is very strong this season and Ethyl gasoline, now available to the independent jobbers, is being freely ordered, according to the blenders of this material. The Standard Oil Co. is also advertising in the daily press its Ethyl gasoline, and it looks as if this was to be an Ethyl gasoline season more strongly than ever before in this territory. Practically all refiners are pushing their better grade of gasoline. Marland Refining Co. has announced a new and better gasoline as available at all its stations. It is understood the new product is a 60-62 gravity with a 410 endpoint and color 30. Some test run on gasolines bought at the stations of the leading distributors all showed a high grade product, in most cases decidedly better than the regular 58-60 437 or U. S. Motor gasoline. This will be appreciated by motorists and should serve to give their motor fuel a greater demand from drivers.

In Ohio and Kentucky the shift of prices continues, many cuts in price being reported from both states. These states are at great disadvantage, the prevailing freight rates making them a dumping ground from refineries from the East, West and South. The Standard Oil Co. Ohio, has been striving to return prices to normal, but just as fast as it succeeds in adjusting prices in one part of the state there is trouble and reduced prices in another section, so that a list of prevailing prices in Ohio shows considerable as well as many variations from the normal tank wagon price. Natural gasoline has been in rather light demand in this market and prices are lower than a week ago. Export concerns report very few inquiries here and little export business coming this way.

Kerosene and Distillates

Kerosene was a little more active last week and the market was fairly steady at former prices. There was not much to interest the trade, just a routine business with a little larger sales on the whole. Refiners were more firm in their price views.

Distillates and furnace oils had a little belated demand from different parts of the territory but the total business done was not large. Prices were unchanged. The orders were all for immediate shipment with cars in transit preferred, and plenty of material for the limited demand was readily available. The dealers both in tank car and tank wagon lots are now working on the season of 1929-30 and are closing some contracts. The tank car contracts being made are very largely on the basis of the market at the date of shipment with minimum and maximum prices. One refiner is offering a very good grade of gas oil with a range of 3 to 3½ cents. The same organization is naming a maximum and minimum of 4½ to 3 cents for its 38-40 distillate. Another refiner is putting out a list of prices to dealers with the following alternative: A price over the season is named or the buyer can make a contract for the market price at date of shipment with a maximum and minimum. On its 36-40 distillate, the price for over the season is 3¾ cents, or the market, with a minimum of 3 cents and a maximum of 4½ cents. On 32-36 low flash fuel oil, really a blended zero gas oil, the season price is 2¾ cents, minimum 2½ cents, maximum 3 cents. For 28-30 zero fuel oil, $1.05 over the season and the range on the market quotation 80 cents to $1.20; the 18-22 fuel oil is priced at 60 cents a barrel with the minimum-maximum price of 50 to 70 cents for those who prefer to contract at the market price. These are present prices and are of course subject to changes. Refiners report the trade interested and that they are securing some contracts even at this early date. The distributors are also soliciting a renewal of contracts with consumers at practically the same prices as last season at this time. Some are mailing out renewal contracts to their customers and others are also using their service men and salesmen to secure a continuance of the business. All expect the number of consumers of furnace oil will be larger than a year ago as the number of satisfied customers is larger, and these are the best advertisement possible for heating with oil.

Gas Oil Fair

Gas oil has been moving on contracts but the open demand has been only fair. Some gas companies or those who supply the larger gas companies have been in the market either for considerable quantities or for contracts over the year. The quotations received are below the present market, judging by the reports of unsuccessful bidders who, having named low prices in the hope of securing the business, are told their prices were not attractive. Both U.G.I. and recycled gas oil have been sold during the week at 2¼ cents on orders calling for only fair quantities of material over the month and this price is about the market for the buyer of quantities. Much of the gas oil at present offered here is from Texas refiners and Oklahoma material is not offered at these prices, the market there being quoted at around 2⅜ cents.

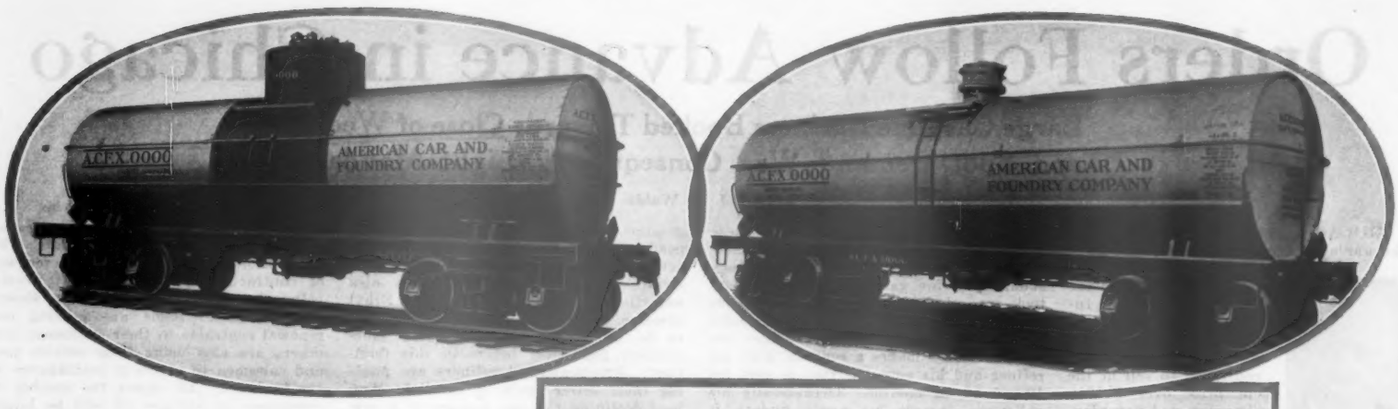
Fuel oil is moving largely and steadily on contracts and there is considerable spot demand with little trend to the situation as regards prices. The industries were never more fully occupied and the volume of business is very large. In the 24-26 gravity and higher gravity oils the refiners are able to secure former prices as the supply of these oils is not excessive and they are desirable for cracking stock in some cases and are required by such users of fuel oil as must have a product free from excess of sulphur. When the gravity is below 24-26 degrees, a very different condition is found. There are large quantities of oil to be had that are usable if not so desirable because of excess of sulphur, too high viscosity, bad odor or some such factor that restricts their general usefulness. The result is that sellers must find a buyer who can use their particular grade or kind of fuel oil. Prices are uncertain and unsettled and show considerable variation. Some 18-22 material is to be had at from 40 to 42½ cents. Other sellers of the same gravity but with less sulphur or with a low viscosity are asking as high as 50 cents. There is little of the higher gravities being used for heating purposes now and that little will naturally grow less, but these higher gravities will probably hold their own while the outlook for the lower gravities is less bright for the time is close at hand when some of the important industries will slacken their activities because of the summer season.

Lubs Quiet

The market for refinery lub stocks is quiet right now except for the movement on early contracts. Prices are very firmly held and bright stocks show an advancing tendency. Steam refined stocks are strong and even neutrals are more firmly held. The demand for motor oils is less active as the consumption is somewhat reduced by unfavorable weather conditions. Industrial specialties are having a good demand. Prices for all these oils are firm.

The change in the tank wagon price

(Continued on Page 168)



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Practical Suggestions in Refining

By W. T. Ziegenhain

Gas-Proof Look Box Designed and Used By Burford Oil Co.

A gas-proof lookbox of low cost and with parts easily replaceable has been designed by the Burford Oil Co. This type has been installed in their Pecos, West Texas plant and have given very satisfactory results during the four months the plant has been in operation. A picture of one of these is shown below. The size of the lookbox will vary with the size and duty of the still it serves, but a 16-inch casing and glass is ample to handle a stream of 30 to 40 bbls. per hour.

The bottom part of the lookbox is simply a 2-foot section of 16-inch iron pipe. A round plate is welded to the bottom face of the pipe section closing it with the exception of a 6-inch hole

through the center of the plate. Pipe flanges are bolted on both sides of the plate. A 2½-foot length of 6-inch pipe is screwed into the flange on the inside of the lookbox and the other flange, on the outside of the plate provides a means of connecting the lookbox into the line coming from the stills. The pipe riser inside the lookbox is cut at the top at an an angle to give the stream a V shape in cross section. The operator is able to judge the volume of the stream by noting the height of the overflow on the edges of the V. The outlet on the lookbox comes out of the side, about 8 inches above the bottom of the box. This is a short 4-inch nipple, welded into the box and is threaded on the other end to be connected into the manifold for the rundown lines. A 1-inch line, run through the bottom plate serves as a drain for the box in case it is to be repaired. A sample line may be seen in the picture, about 4 inches below the lower rim of the glass bowl. An ordinary brass stopcock permits the operator to sample the stream.

Two grooved one-half-inch iron plates, pulled together with three long bolts and spacers hold the glass bowl and with this arrangement it is not difficult to hold a tight joint with packing between the glass rim and the iron. The bottom ring plate is welded to the lower section

(Continued on Page 168)

REDUCING STILL OPERATING AT PROFIT DUE TO PARTIAL CRACKING

By adding a heavy duty pipe still at the end of the crude battery, to partially crack the residuum, some refiners have been able to make a lower viscosity fuel oil, more acceptable to the trade and secure enough light distillate from the operation to make it profitable. This practice has been adopted in the West Texas and Panhandle refining areas particularly, because many of these plants do not have cracking units and with fuel oil prices relatively low, have improved the quality of their fuel production and decreased the production wherever possible.

This may be accomplished in many ways and each refiner has his own design and method of running but in general includes the equipment shown in the drawing below. The design of the equipment will depend principally upon the amount of residuum to be processed, the degree to which the residuum has been reduced in the crude battery and the intensity of cracking to be carried on in the pipe still. Operating difficulties increase and the throughput of the unit decreases as the gravity of the charging stock is reduced and condition of temperature, pressure and time set to intensify cracking. An economic balance for his equipment is the aim of the refiner and is intended to differentiate this practice from the ordinary cracking procedure, in which relatively high yields of gasoline are secured and provisions made to handle any coke formed, etc. Because such an installation has its limitations, it is used on a rather narrow range of charging stocks, preferably a residuum between 20-26 gravity based on running West Texas crudes.

The residuum from the crude battery will approximate 650 degrees Fahrenheit in most cases and this is taken direct from the last still in the battery to the fuel reducing still by means of a heavy duty hot oil pump operating against a back pressure sometimes as high as 250 pounds. The pump speed is largely a function of the rapidity with which crude is being charged and the pump is speeded up or retarded according to the liquid level in the last shell still of the battery.

As in most operations, there is an advantage in maintaining a uniform rate of charging and with this established, it is not difficult to maintain a uniform rate of charging to the fuel reducing still. The reducing still is designed to bring the temperature of the residuum from 650 degrees to 1,000 or 1,200 degrees as desired and necessary to effect an economical amount of cracking at the relatively low pressures without excessive recycling.

The tubes in such a still are generally relatively small in diameter and the required heating surface is secured by increasing the number and length of the tubes. This method of securing heating surface calls for a greater outlay of money but is justified by the fact there is a greater turbulence set up in the oil flow through the still, a lesser cross section of oil to be heated at any given point of travel and in effect minimizes local heating and the formation of coke. Any coke that is formed is swept away. Under normal conditions, the still may be easily operated for a month without cleaning.

In subjecting the oil to such high temperatures, any improper timing of the heating induces excessive cracking whereby the heavier hydrocarbons are broken down to gases and is undesirable. Some control is placed on the time-temperature relation by producing the effect of shock-chilling of the stream from the still at the point where the stream enters the tower. Referring to the diagram, the hot stream from the still is shown as a spray and may be accomplished by directing the oil flow downward against a round plate or cone. Immediately above this spray is shown an inverted conical section which collects the knock-back of the tower and directs it on to the hot oil coming from the still. It is not necessary to lower the temperature of the incoming oil more than 50 to 100 degrees to bring about the effect of shock chilling and this may be secured even in an insulated tower. Some refiners experimentally determine the optimum temperature difference and equalize the effect of a tower by not insulating a portion of the top.

The tower will vary in size in accordance with the duty it is to perform but in general, the operation favors a relatively high tower for any given diameter. The base or bottom compartment may be of greater diameter to gain capacity since it performs a different duty. A liquid level is maintained in this compartment high enough to permit the complete stripping of the fuel oil of any light fractions. The temperature is sufficiently high in the compartment to readily distill off all the gasoline.

Based on the residuum charged from 10 to 20 per cent gasoline is made and with a gas loss of 5 to 8 per cent the resultant yield of fuel is about 78 per cent of the original charge. This fuel is lower in gravity usually approximating 15 gravity but has a relatively low viscosity and a very low pour point and a high B.t.u. value making it a very desirable fuel for railroad and industrial use.

The sulphur content is increased in about the proportion the yield of fuel oil is reduced based on the original charge but this factor does not prove to be an objectionable factor in most cases.

The gasoline is not made direct from the tower because it is too difficult to treat. A distillate corresponding to a pressure distillate is made as the overhead product and this is rerun separately. The resultant gasoline differs little in its characteristics from ordinary straightrun gasoline made from West Texas crudes. Were this operation carried out when running a low sulphur content crude, the rerunning might be dispensed with.

The residue in the tower is continuously removed and a portion of it returned to the still to be recycled if more intensive cracking is desired, or all of it is discharged into an evaporator where a light distillate may be flashed off with the reduction in pressure. This step is optional and since the pressure must be reduced in some manner, the production of the light distillate is incidental.

Because of the high temperatures reached in the process, there is a large volume of heat available in the system after the cracking is completed. This heat is utilized in preheating the crude going to the battery and where the residue from the battery represents a large volume of the crude, such as would be the case when running heavy crudes, the available heat is enough to completely strip the crude of the gasoline fraction. As an example of the manner in which this available heat may be absorbed the cold crude is shown going through a vapor heat exchanger where the distillate preheats it. The crude then passes through the gas oil heat exchanger where it is further heated and finally through the fuel oil exchanger. The gas oil exchanger must have ample capacity since most of the gas oil enters the exchanger as a vapor and over the first portion of

(Continued on Page 168)

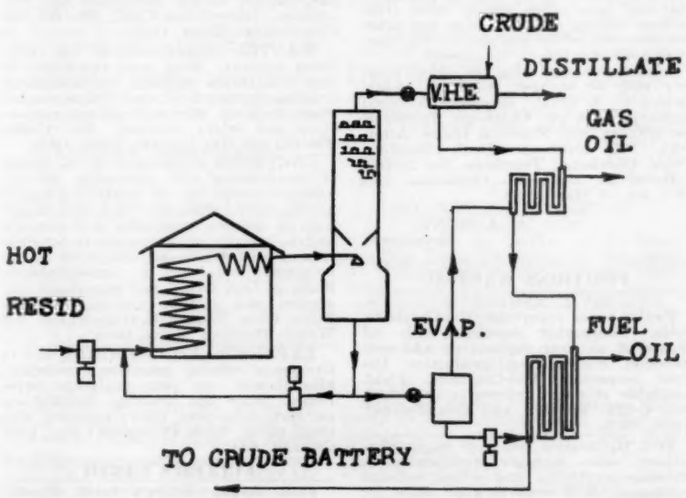

Diagram of equipment and oil flow for pipe still unit placed at the end of a crude battery and used to reduce the viscosity and pour point of heavy fuel oils in a partial cracking operation.

Recent Patents

TREAT WITH SULPHUR DIOXIDE

1,710,201. Process of Purifying Hydrocarbons. John C. Black and Marvin L. Chappell, Los Angeles, Calif., assignors to Pan American Petroleum Co., Los Angeles, Calif., a corporation of California. Filed May 28, 1927. Serial No. 194,971. 7 Claims. (Cl. 196—37.)

1. A process of purifying hydrocarbon oils, which consists in treating the same with liquid sulphur dioxide at low temperatures, and in quantities sufficient to dissolve a portion of the constituents to be separated, dissolving that portion of the constituents to be separated therein, separating the two liquids and then treating the partially purified hydrocarbon oils at low temperatures with sulphuric acid in the presence of dissolved sulphur dioxide, in quantities sufficient to convert the balance of the constituents to be separated into sulpho-acids, and then separating the purified hydrocarbon oil from the sulpho-acid and sulphur dioxide.

(Additional Patents on Page 216)

35 CENTS a line first insertion; 25c a line each additional insertion. Cash in advance.

CLASSIFIED WANTS

CREATE AND BUILD BUSINESS

MAIL your advertisement now. It will be published next week. Cash with order.

EQUIPMENT WANTED

WANTED TO PURCHASE—A light rotary rig complete with tools, less boilers. Box B, Wainwright, Alberta, Canada.

WANTED — Spudder of any reliable make. Must be in condition ready for service, and a bargain. Jones-Ochs Oil Company, Davenport, Iowa.

WANT TO BUY good solid leg wood Turnbuckle drilling rig. Might consider Tubular steel rig if priced right. Want derrick, all wheels, reels, sills, pulley, etc., but no tools. Address giving location, just what you can furnish and cash price loaded on cars. Box C-945, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE—EQUIPMENT

BOILERS FOR SALE

5—625 H. P. Geary Water Tube Boilers, Heine type, 200 lb., Taylor stokers. ash hoppers and overhead coal bunkers. Bargain for quick removal.
CONSOLIDATED PRODUCTS CO. INC
17-20 Park Row, N. Y. C. Barclay 0600

TWO Tagliabue thermometers, temperatures from 150 to 800 degrees Fahrenheit, only used twice, like new, price $20 each. Box C-936, The Oil and Gas Journal, Tulsa, Okla.

REDUCE your Wiper costs by using White or Colored Cotton Waste. Costs less. More wiping surfaces. Also washed and sterilized Wiping Cloth and Wool Waste at reduced prices. Overnite shipping service. Manufactured by AMERICAN SANITARY WIPER & WASTE CO.
511-513 Broadway, Victor 2909-2910, Kansas City, Mo.

FOR SALE—Two 14 x 24—150 H. P. Duplex D. A. Cooper Gas Engines direct connected to Hall Compressors, inter and after coolers, all in first-class condition. Priced right. Detailed description and price on application. CLARENDON GASOLINE COMPANY, 66 Main Street, Bradford, Pa.

BUY OR RENT USED PIPE
and Save the Difference
15,000'— 5⅛" Casing.
10,000'— 6⅝" Casing.
5,000'— 8¼" Casing.
5,000'—10" Casing.
1,000'—12½" Casing.
1,000'—15½" Casing.
We will rent this casing or any other pipe which you may need. Let us finance your operations by carrying your pipe and casing investment for you.
KEYSTONE PIPE & SUPPLY CO.,
Holmes Building,
Fort Worth, Tex.

NOTICE — FOR SALE—EQUIPMENT
Humble refinery—Standard Oil product cracking plant. Wilson Refining—tank, stills, pumps, agitators, boilers, pipe and connections. Will buy salvage plants or pipe lines.
W. BOGART,
Burkburnett, Tex. Phone 136

FOR SALE
USED OIL FIELD EQUIPMENT AND MOTORS
7—Westinghouse motors size 15/35 HP.
8—General Electric motors size 15/35 HP.
1—General Electric motor size 15 HP.
1—General Electric motor size 75 HP.
1—Ideal Electric motor size 5 HP.
Approximately 35,000 ft. of wire, 125 poles and other equipment.
THE SILURIAN OIL COMPANY
508 Wright Bldg., Tulsa, Okla.

FOR SALE, by owner; complete gasoline absorption plant, rated capacity eight million cubic feet, located Northern Oklahoma. This plant built in 1923 and well worth the money. For further particulars write or wire, Room 934, Mayo Building, Tulsa, Oklahoma.

FOR SALE—One 60-horsepower Pattin Brothers direct-driven engine and compressor complete, in first-class condition. For price and particulars address Lock Box 117, Lima, Ohio.

FOR SALE—One six HP Fairbanks Morse Gas Engine, direct connected to duplex 2½x4½ Fairbanks Morse Pump. Cost $540, good as new, will take half price. ATKINS SERVICE COMPANY, Box 366, Seminole, Oklahoma. Also Novo 6 HP pumping unit, $150.

FOR SALE—EQUIPMENT

FOR SALE, No. 2 National drilling machine, bailer, engine and tools complete. Good condition. Located near Mounds, Oklahoma. Frick-Reid Supply Corporation, Tulsa, Okla. Credit Department.

NOTICE OF RECEIVER'S SALE

NOTICE IS HEREBY GIVEN, that the undersigned, C. J. Hunt, heretofore, and on the 24th day of April, 1929, appointed Receiver of the properties of the Invader Oil Corporation, located in the State of Oklahoma, by the District Court of Muskogee County, Oklahoma, in Case No. 21359, J. J. Culbertson, Jr., Trustee, vs. Invader Oil Corporation, a corporation, defendant, and under and by virtue of an order of said court made on the 10th day of May, 1929, will offer at private sale to the highest bidder for cash, the following described property, on and after June 7, 1929:

An oil and gas mining lease on and covering the North Half of the Southwest Quarter of Section 16, Township 14 North, Range 13 East, Okmulgee County, Oklahoma.

An oil and gas mining lease on and covering the South Half of the Southwest Quarter of Section 16, Township 14 North, Range 13 East, Okmulgee County, Oklahoma.

An undivided 31/64th interest in and to an oil and gas mining lease on and covering the North Half of the Northeast Quarter of Section 19, Township 14 North, Range 14 East, Okmulgee County, Oklahoma.

An undivided ⅛th interest in and to an oil and gas mining lease on and covering the Northwest Quarter of the Southeast Quarter and the Northeast Quarter of the Southwest Quarter; and the West Half of the Northeast Quarter of Section 32, Township 17 North, Range 14 East, Tulsa County, Oklahoma.

An undivided ⅛th interest in and to an oil and gas mining lease on and covering the East Half of the Southeast Quarter of Section 16, Township 19 North, Range 7 East, Creek County, Oklahoma;

Together with all the oil and gas wells, oil well casing, tubing, rods, pumps, jacks, engines, boilers, line pipe, derricks, machinery, houses and equipment of every kind and character thereon and thereunto belonging.

1—1926 Model One Ton Ford Truck.
1 Fordson Tractor equipped with Sampson Winch.
1 Ford Trailer.
1 National Pulling Machine.
Three rooms of office furniture and equipment, consisting of two rolltop desks, two flat top desks, 1 safe cabinet, one steel safe, office chairs, three typewriters, adding machine, rugs and other miscellaneous office equipment; the same to be sold in whole or in parcels.

Information regarding the above property may be secured from the undersigned, C. J. Hunt, Muskogee National Building, Muskogee, Oklahoma, Telephone No. 230, or from Nelson & Bland, Attorneys, 906 Exchange Bank Building, Tulsa, Oklahoma, Telephone No. 2-5762.

Dated at Muskogee, Oklahoma, this 13th day of May, 1929.

C. J. HUNT,
Receiver.

POSITIONS WANTED

CIVIL ENGINEER

Twelve years' experience Mid-Continent fields. Thoroughly familiar with all phases of oil field engineering and construction. Pipe line and production. Desires connection Mid-Continent Field. Available at once; references furnished. Box C-924, The Oil and Gas Journal, Tulsa, Okla.

YOUNG married man now employed as refinery sales manager, experienced in refining, marketing and selling refining equipment. Will come to your office for interview. Can furnish references from past and present employers. Box C-943, The Oil and Gas Journal, Tulsa, Okla.

POSITIONS WANTED

TRAFFIC MANAGER with long experience with leading Oil Well Supply Manufacturers, at liberty after March 1. Wants to locate in West or South. Willing to start at reasonable salary and let results care for future. Box C-752, The Oil and Gas Journal, Tulsa, Okla.

GEOLOGIST AND GEOPHYSICIST

Thorough training in gravimetrical, magnetical, seismical work, quantitative interpretation. 4 years experience in geological and geophysical prospecting for oil; several languages, Ph. D. of European university, best references, goes abroad. Wants position, where good training appreciated. Box C-940, The Oil and Gas Journal, Tulsa, Okla.

WANTED—Position as Refinery Superintendent, Assistant Superintendent or Foreman. Twelve years' practical experience. Four years as Superintendent. Now employed. Address Box C-920, The Oil and Gas Journal, Tulsa, Okla.

GEOLOGIST—Two years field and subsurface experience with major companies in Mid-Continent area. O. U. graduate. Prefer place with small company or individual. Address Box C-921, The Oil and Gas Journal, Tulsa, Okla.

CHEMICAL ENGINEER, 30, single, M.I.T. graduate, five years' refinery process development and design, desires new connection, executive capacity, in refinery operation or engineering. Box C-926, The Oil and Gas Journal, Tulsa, Okla.

CHEMICAL ENGINEER, age 37; 15 years' experience in chemicals and oil refining. At present employed by a large refinery in the East. Familiar with modern refinery practice. Permanent connection or contract. Available July 1, 1929. Box C-922, The Oil and Gas Journal, Tulsa, Okla.

HELP WANTED

Wanted draftsmen with experience in compressor and absorption plant design. Apply 408 Wright Bldg., Tulsa, Okla.

WANTED — Engineer qualified by training and experience to handle design and engineering of complete petroleum refining plants. Position now open with old established equipment builders. Reply should give complete information of training and experience and salary. Write Box C-930, The Oil and Gas Journal, Tulsa, Okla.

WANTED—By manufacturer, one or two men with practical refinery operating experience to sell and service well-known special steel fittings used on tube stills and cracking coils. Engineering and selling experience desirable but not essential, as we want men who know tube still construction and operation and who have good personalities. Plant is in Ohio. Give age, family, record, experience and references. Address Box C-932, The Oil and Gas Journal, Tulsa, Okla.

WANTED—Superintendent for Oklahoma refinery. Must have experience in pipe still, Dubbs cracking, and continuous treating operation of west Texas crudes. State training, past and present connections and salary required. Box C-933, The Oil and Gas Journal, Tulsa, Okla.

ENGINEER experienced in the design of compression and absorption natural gasoline plants, for the position of assistant engineer. Must have thorough knowledge of modern equipment and practice and be capable of assuming responsibilities of chief draftsman. Interview by appointment only, or in correspondence. State in first letter, age, experience, education and salary expected. Location Tulsa, Okla. Forrest E. Gilmore Co., 408 Wright Building, Tulsa, Okla.

EXPERIENCED CHEMISTS, two to five years' refinery operating experience; also chemist one year analytical experience. State age, training, detailed experience, references, salary expected, also small photo. Shell Petroleum Corp., East Chicago, Ind.

FULLER'S EARTH

FOR SALE—Fuller's earth deposit, superior quality in 3 feet of service. S. M. Loving, Route 1, Box 23, Ledbetter, Tex.

ADDRESSES WANTED

JOHN WILLIAMS

Anyone knowing the whereabouts of John Williams will confer a favor by notifying The Oil and Gas Journal at once. Mr. Williams lived near New Geneva, Pa. Later was employed as driller for Greensboro Natural Gas Co. Last heard of in Texas where he was employed in oil fields. Mr. Williams has a fully paid up policy. Eastern insurance company wishes to pay him its matured value. Write Box JPM, The Oil and Gas Journal, Tulsa, Okla.

INCORPORATIONS

CHARTERS—Delaware best, quickest, cheapest, most liberal. Free forms. Colonial Charter Co., Wilmington, Del.

DELAWARE incorporator. Charters. fees small, forms. Charles G. Guyer, 901 Market St., Wilmington, Del.

FOR SALE—MAPS

OIL DEVELOPMENT MAPS — Any county in Oklahoma and West Texas, 50c each. Lindsay Map Company, Franklin Bldg., Oklahoma City, Okla.

LEASES—PRODUCTION

WEST TEXAS LEASE

Drilling block, northwest Edwards County, Texas, without drilling obligations. 16,500 acres, joining leases of The Texas Company. Republic Production Co., Fowler & Mott, Peerless Oil Co. Lease runs 20 years (dated December 20, 1925), covers oil, gas and other minerals. Ten cents rental, paid to December 20, 1929. Priced right. Owned by
WEST TEXAS LAND CO.,
Fort Worth National Bank Building.
Fort Worth, Tex.

FOR ALL kinds of Texas leases and royalties, proven or wildcat, good title, write to 527 Hicks Bldg., San Antonio, Texas.

WILL BUY PRODUCTION

Will buy good production immediately if priced right. Give full information first letter, including amount of daily production, gravity, acreage, plat of property showing location of wells and surrounding wells, pipe line buying oil, price of oil, legal numbers of land, equipment, price wanted, etc. Box C-944, The Oil and Gas Journal, Tulsa, Okla.

PECOS COUNTY, 7 miles from production and drilling closer every day. 5,760 acres in a block, title perfect. Ten year lease and 50c rental. Price $5.00 per acre. John G. Crawford, Grandfalls, Texas.

WE WANT DRILLING BLOCKS
Send all details to
Box 152, Brownwood, Texas.

IF INTERESTED in the Michigan Oil Fields, write for free bulletin, or other information. Michigan Oil & Mining News, 115 Ionia St., Grand Rapids, Mich.

A GOING oil concern with production would like to get in touch with some operator having some acreage and production, with a view of a merger. We have a large selling organization and are in a position to raise capital. L. White, 514 Penobscot Bldg., Detroit, Michigan.

PRODUCTION wanted in Texas and Oklahoma. Submit map, details first letter. P. O. Box 1454, Fort Worth, Tex.

1,000-ACRE lease 1½ miles of test now down 500 feet and is to test the Dundee. This lease is in central Newago County, Michigan, and is in solid block; priced now at $6 per acre. Forty-acre offset to well at $25. Have other large and small tracts of land for sale outright close to drilling and producing wells at prices from $7 per acre and up. Address Robert O. Zielinski, 428 Wood Street, Blue Island, Ill.

3,000 acres for lease, $10 acre to drill, ⅛ royalties in Washington County. Lease located 4 miles south, 14 miles north between two big oil fields. This is almost proven territory. A wonderful opportunity for right man. M. E. Fisher, Brenham, Texas.

FOR SALE—To oil companies, complete maps of Presidio, Jeff Davis and Brewster Counties. L. E. Weeden, Fort Davis, Texas.

35 CENTS a line first insertion; 25c a line each additional insertion. Cash in advance.

CLASSIFIED WANTS

CREATE AND BUILD BUSINESS

MAIL your advertisement now. It will be published next week. Cash with order.

LEASES—PRODUCTION

30,000 ACRES

IN

MICHIGAN

Allegan and Van Buren Counties. Ten year leases. Written in last 60 days on most favorable terms. Twelve possible producing horizons. Highest geological authority states good structure present. Will sell all or part or will consider drilling proposition.

Write R. E. Lang, care Jackson Brothers, Boesel & Co., 332 South LaSalle Street, Chicago, Ill.

FINLAY DOME district, Hudspeth County, Texas, looks good. Map and lease prices $1.00 cash.
G. D. BATEN,
BOX 1591, EL PASO, TEXAS.

WANTED: Offset or close-in leases to production or to wells drilling on structure. Also interested acquiring fifty-fifty drilling deals on acreage offsetting production or close-in. Address Box C-901, The Oil and Gas Journal, Tulsa, Okla.

IF INTERESTED in Wildcat leases or royalties in Eastern New Mexico and Western South Plains of Texas, Address Box 968, Lubbock, Texas.

PECOS COUNTY LEASES-ROYALTIES

Quick cash. 640 acres; 40 acres surrounded by major company holdings. Near Yates; largest wells in Texas. Write or wire G. L. Moody & Co., San Angelo, Tex.

CASH PAID for New Mexico oil leases. For sale, perpetual deeded oil royalty. HOT SPOT Lea County; small investment. Monarch Inv. Co., Roswell, N. Mex.

FOR SALE—New Mexico oil and gas leases, covering state lands. Good title. Lea County; 40 acres for $50. Chaves County, 40 acres $25. P. O. Box 194, Roswell, N. Mex.

M'PHERSON COUNTY, KANSAS
LEASES AND ROYALTIES
E. ENGSTROM,
M'PHERSON, KANSAS

HAVE LARGE block new and extended permits in Vernal district, Utah, where recent oil strike proves enormous new field. Have corporation complete, set up ready to go to live wires who know where and how to get money. Can sit on inside. This is wonderful deal. Write or wire P. O. Box 882, Salt Lake City, Utah.

HAVE 9,000-acre block, five-year leases, under drilling contract in northwest Stevens County on Cimarron River with best geology in southwest Kansas. Will sell or give good interest for well. Rotary or combination rig needed. For full information write Box 96, Rolla, Kans.

WILL LEASE 5 to 200 acres close to Perrin No. 1 Eaton gasser, north Pecos County, Texas. Owner, 1441 West Forty-second Street, Oklahoma City.

NEW MEXICO STATE LEASES
BOUGHT AND SOLD

List your leases with us. Quick action if priced right. Good demand. Box C-935, The Oil and Gas Journal, Tulsa, Okla.

LOOK—640 acres of land in eastern Wyoming with prospect for oil. For sale or lease. Ernest Habegger, California, Mo.

OIL LEASES for sale for the rental. 4,000 acres 50c per acre. Box C-942, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE all or part 80 acres offset lease well now drilling, Muskogee County, Oklahoma. $25 per acre. Box 487, Kansas City, Mo.

FOR SALE one forty acre lease in section 24, township 17 south, range 34 east, Lea County. Near Vacuum well, state offer in first letter. M. J. McGurn, Jr., Ashford, N. Y.

NEW MEXICO

For land ownership of Lea County, write Mrs. Dock Townsend, Lovington, N. Mex.

LEASES—PRODUCTION

DRILLING blocks, leases, royalties in Ellis, Trego, Rooks, Norton Counties. Write or wire W. J. Madden, Hays, Kansas.

BROKERS: Western Oklahoma leases, drilling blocks, royalties. Joe P. Crawford. Oklahoma City, Okla.

LEASES and royalties, Caddo, Blaine and adjoining counties. Write for complete list. A. E. Baldwin, Anadarko, Okla.

FREE LEASES for well near corner Winkler, Ward, Crane and Ector. C. H. C. Anderson, Linz Building, Dallas, Tex.

STRONG gas pressure water wells, my 819-acre farm, MONTGOMERY COUNTY, MISSISSIPPI, crossed by C.&G. R.R. Preston well, although west of fault line, had good showing high gravity, paraffin base oil (Pennsylvania grade). Geologists who "know their stuff" found closed structures, gas blowouts, petrified tree trunks and same fossils found in Smackover due west. Free lease, reliable operator only, for 3,500-foot well. R. N. Jacks, Kilmichael, Miss.

SHALLOW WELLS, high grade oil, acreage cheap, money refunded if not productive, dry hole money pays cost of drilling. A. W. Groseclose, Oklahoma City, Okla.

ROYALTIES AND LEASES,
BOUGHT AND SOLD.
25 years experience in the Mid-Continent oil fields. E. J. Davied, Fort Stockton, Texas.

LANDS, Leases, Royalties and drilling blocks in proven or unproven territories, Winkler, Pecos, Ward, Loving, Reeves, Culberson and adjoining Counties. Wire or Write.
H. F. Anthony, Anthony Bldg.,
Pecos, Texas.

30,000 ACRE lease in Harding Co., New Mex. Will sell or make drilling contract. Have Geologist's report. Plenty of structure in sight. Also for sale or lease. 160 acres Grey Co., Texas. 1½ miles from big wells at LaFores. W. H. Woodlief, 728 N. Fillmore St., Amarillo, Texas.

TEXAS
Lands, Leases, Royalties.
DRILLING BLOCKS.
New ownership map,
Bastrop, Caldwell, Guadalupe
and Gonzales Counties area,
17×28—send $1.00.
J. S. Jones
Telephone Building
Luling, Tex.

WINKLER—PECOS COUNTIES
Leases and Royalties
W. S. PATTERSON
Pecos, Texas

FOR SALE—Leases, Oil Production, Asphalt, Limestone and Other Mineral Lands. W. P. Harley, Bowling Green, Ky.

WINKLER, PECOS, WARD, Loving and Reeves Counties. Leases and Royalties. Hemby & Anderson, Box 633, Pecos, Texas.

CHECKERBOARDED acreage 2½ miles north Trees well 5S, 15W, Osborne Co., Kansas, @ $2 to $5. C. F. Barb, Golden, Colo.

ROYALTIES—PRODUCTION

WEST TEXAS ROYALTIES and leases, all active areas. Cheap land and ranches. J. L. Ferguson, San Angelo, Tex.

WE PAY CASH for producing royalties. Can give quick action. Send particulars. P. J. Minck, 30 Fifth Avenue, New York City.

OIL ROYALTIES and Land Investments, Lindsay Map Company, Franklin Bldg., Oklahoma City, Okla.

FOR SALE—Producing royalty interest in Talley Farm, Little River Pool, Seminole County, Okla. H. T. Swanson, Box 268, Jamestown, N. Y.

WESTERN OKLAHOMA royalty ahead of the drill. Inquiries invited. Joe P. Crawford, Petroleum Bldg., Oklahoma City, Okla.

ACTIVE WEST TEXAS ROYALTIES. $8 per square mile big company operation. Maps and bulletins show many fine buys. R. R. Fisk, Box 1214-B, Wichita Falls, Tex.

ROYALTIES—PRODUCTION

DEEDED ROYALTY INTERESTS
NOW OFFERED AS LOW AS $12.50
For spreads over 3,590 acres

Sounds like a bargain—Doesn't it. WELL, it certainly is a tremendous bargain, as well as an excellent buy. And here is how I am able to offer deeded and recordable royalty at such a low price.

First, I am a buyer of Land Owners' Royalty in large tracts and am able to hammer the price down. Then again, I am not paying a large group of high-priced stenographers to write you long letters from time to time; I do not send you fancy drawn maps and photographs, high-powered telegrams, and in various ways spend money trying to interest and sell you. But now, TODAY, I am placing this opportunity before you in ONE OF THE MOST ECONOMICAL WAYS I KNOW OF, thereby giving you perpetual, deeded, recordable Royalty that's yours for the money you invest—instead of a lot of high-powered propaganda.

BUYING, SELLING, TRADING AND OWNING OIL & GAS MINERAL ROYALTY RIGHTS THROUGHOUT WEST TEXAS WITHIN THE PAST FIVE YEARS HAS ASSUMED TREMENDOUS PROPORTIONS. This form of investment is owned by thousands of people throughout all sections of the country.

NEW DEVELOPMENT

You can hardly pick up an oil paper or journal without reading where some important development has taken place on previously undrilled low-priced ground. Such development results usually in immense, quick overnight profits to the land owners and all others interested.

Today, the deeded roalty I offer in PRESIDIO COUNTY, TEXAS, will give you a deeded interest in the Oil and Gas that may be under the land. It will give you an interest in a property of over 1,600 acres that has been leased by the Midland Oil Company.

LARGE COMPANIES OWN THOUSANDS OF ACRES.

To the South and adjoining the royalty I offer, as well as to the North and Northeast and Southeast and Southwest, you will find that major oil companies have literally purchased thousands and thousands of acres of Oil and Gas Leases within the past year—all having been done in a quiet way—the leasing was almost over before the public woke up and learned what had happened in certain parts of PRESIDIO COUNTY.

KNOWLEDGE AND BRAINS FREE

PRESIDIO COUNTY is an extremely large county out in the BIG BEND COUNTRY. After careful examination and geological survey, various major companies and independent operators deliberately passed up hundreds of thousands of acres as unfavorable for the production of OIL. So do not get the idea that the entire country is likely to produce. If you could get expert opinion of some of the leading geologists covering the value and chances of success of an OIL PROPERTY—FREE OF CHARGE—it surely would be a tremendous advantage to you, should you be a buyer of MINERAL & DEEDED ROYALTY.

You do get this advice when you purchase deeded royalty that has been leased to a big major or independent company and without cost to you. Then, another thing—all future development, drilling up the property, is at the entire expense of such major or independent company that owns the Oil & Gas Lease Rights.

THE EXACT LOCATION OF ROYALTY I OFFER

The Royalty is under tracts or Section 1-2-27-29-30-61-62 G. H. & S. A. Railroad Company's Lands, Block Eight. Also under Section 3, G. H. & S. A. Railroad Company's Lands.

BLOCK SEVEN
RIGHT NOW IS YOUR OPPORTUNE TIME
HERE'S MY OFFER

$200.00 Buys	40	Full Landowners ⅛th Royalty Interest: Spread over 3,590 Acres
100.00 Buys	20	Full Landowners ⅛th Royalty Interest: Spread over 3,590 Acres
75.00 Buys	15	Full Landowners ⅛th Royalty Interest: Spread over 3,590 Acres
60.00 Buys	12	Full Landowners ⅛th Royalty Interest: Spread over 3,590 Acres
50.00 Buys	10	Full Landowners ⅛th Royalty Interest: Spread over 3,590 Acres
25.00 Buys	5	Full Landowners ⅛th Royalty Interest: Spread over 3,590 Acres
12.50 Buys	2½	Full Landowners ⅛th Royalty Interest: Spread over 3,590 Acres

TODAY—NOW—send me your order for the amount of royalty interest you desire to purchase. Your Royalty & Mineral Warranty Recordable Deed will be mailed to you promptly, Abstractors Certificate of title will be furnished each purchaser, showing good title; I also will send purchasers ONLY, a valuable colored map, showing exact location of the 3,590 acre spread, its position from the Texas & Pacific Coal & Oil Company's holdings, the Gulf, Empire, Phillips, Delmar and other Companies that to-date, according to the records of the County Clerk's Office, have bought and blocked leases in PRESIDIO County, Texas.

HERE'S MY LEGAL MONEY BACK GUARANTEE

Furthermore—REMEMBER, you have fifteen days to make any investigation you may see fit, and if you are not more than satisfied, you have made a reasonable good royalty buy at rock-bottom prices for what you are getting, OR IF YOU ARE DISSATISFIED FOR ANY REASON OR NO REASON WHATSOEVER—simply do this: Send me all the papers back by registered mail and I will immediately send you Bank Cashiers' check in amount of your contract.

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We deal in Oklahoma Royalties exclusively

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Perpetual royalties under drilling well in Pecos County. Also five-year fully paid up oil and gas leases. For information, write R. E. Moore, Inc., Dan Waggoner Building, Fort Worth, Tex.

LEA COUNTY, NEW MEXICO
Perpetual Royalties.
W. S. Patterson
Pecos, Texas

YATES POOL ROYALTY

One acre or more on Sections 2, 10, or 19, Blk. 194, at $150 per acre. Glen Myers, San Angelo, Texas.

ROYALTIES, in Reno County, Kansas. Leases for $2 and up; titles perfect. Write T. A. Spence, Sterling, Kans.

ROYALTIES, oil leases, drilling blocks, lands in fee, title requirements secured. Good references of long standing. D. J. Perry, Edmond, Okla.

(ADDITIONAL CLASSIFIED WANTS ON PAGE 168)

REDUCING STILL EFFECTS PARTIAL CRACKING

(Continued from Page 165)

the exchanger, the heat transfer is from a vapor to a liquid, and not from liquid to liquid as in the case of the fuel oil exchanger.

Unless there is a mishap in the normal operation of the unit, there is a very small deposit of coke in the still or tower. A cleanout is provided in the base of the tower in the form of an ordinary manhole and is used, but aside from this no coke removing equipment is provided. This applies to an operation such as described in general here, but as was stated previously, as the intensity of cracking is increased, a greater quantity of coke is formed. The gas loss is relatively high, but the gas is passed through absorbers generally and a considerable quantity of gasoline is recovered. The permanent gases are utilized as plant fuel, but with oil at a low price, the operation cannot be credited with much due to the utilization of the gas in this manner.

LARGE ORDERS FOLLOW ADVANCE IN CHICAGO

(Continued from Page 163)

over the territory was warmly welcomed by dealers and refiners alike. The former are more anxious to know what the refinery prices will be a little later.

The new marginal contracts being offered are practically the same as last season with the sole exception that the refiners are increasing the protection allowed by one-half cent so long as the spread between the tank wagon and the station prices remains 1 cent. If the spread is increased to 2 cents, the protection under the contracts is automatically reduced to 3½ cents. Some of the smaller refiners may offer a slightly different contract, but the contracts of the major refiners are practically identical and as above stated.

CANADIAN FIELDS

(Continued from Page 160)

In Saskatchewan, Citizens Oil & Gas Co. of Saskatoon has finished Unity Valley's No. 2, SE Section 23-41-24w3, at 3,201 feet, approximately 600 feet in the limestone. The first oil sand was encountered at 2,040 to 2,065 feet, with lime and shale for the next 20 feet. From 2,085 to 2,145 feet an oil sand was encountered and between 2,105 and 2,145 a porous lime saturated with 24 gravity oil. Between 2,860 and 3,201 the McMurray salt section was penetrated, Silurian fossils being found in the last core at 3,169 feet. A gas flow, about 1,000,000 feet a day, was met between 800 and 1,000 feet, and will be used in drilling Unity Valley's No. 3, which is reported rigging up. Near Herschell, Rosetown Oil Development & Holding Co.'s No. 1, LSD 13, Section 4-31-17w3, has been abandoned at 2,036 feet. Herschel No. 2 has been located in SW Section 6-31-17w3, and will spud in about July 1.

In northern Ontario, the provincial government has contracted with Smith & Travers of Sudbury for 3,000 feet of drilling in the Blacksmith Rapids area on the Abitibi River, and a drilling outfit will be shipped north as soon as navigation is open. Diamond drilling for geological data is called for.

GAS-PROOF LOOKBOX DESIGNED AND USED

(Continued from Page 165)

of the lookbox and makes the whole assembly rigid.

The plate covering the top of the lookbox is drilled and threaded for a 4-inch vapor line to carry off any gases. A 6-inch opening in the top plate provides a means of entering the lookbox if necessary but is made vapor tight by the plate stopper and lever arrangement shown in the picture.

SOUTHWEST TEXAS

(Continued from Page 57)

Floy Gray, James Hinds Survey, completed at 2,674 feet; swabbing 950 bbls. daily.

Humble Oil & Refining Co.'s No. 1 Trap Briscoe completed at 2,672 feet; pumping 175 bbls.

Gulf Production Co.'s No. 12 R. W. Carter, Gerren Hinds Survey, pumping 12 bbls. at 2,695 feet.

The Texas Company's No. 7 Merriweather completed at 2,756 feet; swabbing 450 bbls the first 24 hours.

Refugio County

Mission Drilling Co.'s No. 1 J. E. Fox heirs, eastern flank of field, completed at 3,645 feet, running about 40 feet high, initial production 300 bbls. through three-fourths inch choke, pure pipe line oil.

Houston Gulf Gas Co.'s No. 8 J. A. Lambert completed at 3,578 feet; average gas well, getting formation high.

Benedum & Trees-Morgan's No. B-2 Rooke completed at 3,690 feet; initial production 1,000 bbls. Now flowing 400 bbls. on one-fourth inch choke.

Webb County

G. C. Salley's No. 1 Puig, Carter-Pinkton grant, completed at 1,653 feet; 10 bbls.

Zapata County

Trapshooter Reilly Oil & Royalties Co.'s No. 3 Hinnant, Survey 74, completed at 1,604 feet; 25-bbl. well.

ABANDONED TESTS

Bexar County

Dingman Drilling Co. (Humble lease) No. 1 J. H. Gembler, Section 52, abandoned at 840 feet; salt water.

Caldwell County

C. E. Ellzey's No. 1 Taylor, temporarily abandoned; rig still standing.

Luling Oil & Gas Co.'s No. 1 G. R. Carter, Gerren Hinds Survey, temporarily abandoned at 2,701 feet.

United North & South Oil Co.'s No. 1 G. C. Gideon, Miles Dykes Survey, abandoned at 4,850 feet in schist.

Shell Petroleum Co.'s No. 1 B. O. Shafer, Jolly Field, abandoned at 1,857 feet, going into salt water after drilling through Edwards lime.

Duval County

Humble Oil & Refining Co.'s No. 20 Kohler, Survey 251, dry and abandoned at 2,536 feet.

Fayette County

National Oil Co.'s No. 1 J. C. Melcher, S. M. Williams League No. 1, abandoned at 3,462 feet.

Guadalupe County

J. J. Christie's No. 1 Taylor Thomas, Gustavus Chotwell Survey, abandoned at 1,310 feet temporarily.

A.B.A. Oil Co.'s No. 4 Britton Harris abandoned temporarily at 1,250 feet.

Pat Armstrong's No. 1 Hahl, Wakefield Survey, location abandoned.

Simms Oil Co.'s No. 2 Jandt, location abandoned.

Shell Petroleum Corp.'s No. 2 Charles Grein location abandoned.

Nueces County

F. P. Zoch's No. 1 Carver, same as test carried as No. 1 Nesloney, one of them dropped.

Gonzales County

Empire Gas & Fuel Co.'s No. 2 Norwood, Winslow Turner Survey, abandoned at 4,226 feet.

Benedum & Trees' No. 1 J. E. Lamkin dry and abandoned at 4,367 feet.

Travis County

Flynn Brothers' No. 1 St. Edwards University abandoned at shallow depth.

San Patricio County

J. T. Laprade's No. 1 D. Odem dry and abandoned at 4,000 feet.

Webb County

Aviator Gas Co.'s No. 3 Bruni, Survey 2,083, abandoned at 1,300 feet.

Zapata County

R. V. Hill's No. 5 Ramirez, Survey 627, abandoned at 1,395 feet temporarily.

NEW LOCATIONS

Bastrop County

Trinity Drillers Inc.'s No. 4 A. Yoast (Gulf lease), A. Garcia Survey, 300 feet east of No. 3, is drilling at 1,380 feet in Serpentine.

The Texas Company's No. 6 A. Yoast, A. Garcia Survey, southeast of No. 5, is drilling at 300 feet.

Atlantic Oil Production Co.'s No. 6 A. Yoast, A. Garcia Survey, 300 feet southeast of No. 5, is setting casing at 1,350 feet.

Bexar County

Bingman Drilling Co.'s (Humble lease) No. 1 Walter Gembler, A. Manchaca Survey, 2,250 feet from north line and 152 feet from east line, has spudded in.

Brooks County

Location has been made for A. W. Dinn's No. 1 Salado, Block 5, in the center of a block.

Caldwell County

Magnolia Petroleum Co.'s No. 1 H. M. Lochman, Guadalupe College Survey, is a location 150 feet from the south and west lines.

United North & South Development Co.'s No. 1 F. Blundell, R. B. Jarmon Survey, is a location 150 feet from the north line and 318 feet from the east line.

Humble Oil & Refining Co.'s No. 3 J. L. Northcutt has derrick up.

Humble Oil & Refining Co.'s No. B-9 Moses & Baggett has derrick up.

Humble Oil & Refining Co.'s No. B-8 Moses & Baggett is rigging up.

Derricks are up for Humble Oil & Refining Co.'s No. 3 Addie Hinds, J. Hinds Survey, and No. C-2 Floy Gray.

Humble Oil & Refining Co.'s No. B-1 M. Briscoe is drilling in shale at 517 feet.

Forest Oil Co.'s No. 1 Mrs. Moore is rigging up with rotary.

Cranfill & Reynolds' No. 4 Northcutt is rigging up.

John T. Callahan and others' No. 1 W. Ellison, House Survey, has derrick up 750 feet from the east line and 150 feet from the south line.

Duval County

Humble Oil & Refining Co.'s No. 26 Kohler, Survey 251, located 495 feet from east line and 165 feet from the north line, has derrick up.

Kimble County

J. B. Lindsay's No. 1 G. C. Ambersom, Section 167, located 1,320 feet north and east lines has been spudded in.

Refugio County

Houston Gulf Gas Co.'s No. 1 Adkins is location.

Houston Gulf Gas Co.'s No. 3 Adkins has spudded in.

Mission Drilling Co.'s No. 1 T. P. Shelly has cemented surface casing.

Houston Gulf Gas Co.'s No. 5 Ryals is location.

Victoria County

Location has been made for Humble Oil & Refining Co.'s No. A-1 Kohutek, Survey 5, 1,945 feet from southwest lines and 900 feet from northwest lines.

Zapata County

South Texas Production Co.'s No. 1 Roy Jennings, Mira Flores Grant, 18,055 feet from southwest lines, 11,040 feet from southeast lines, is location.

Ray & Holder's No. 1 Cuellar, Cerrito Blanco Grant, 150 feet from northwest lines and 446 feet from southwest lines, is moving on.

Humble Field—Duval

Humble Oil & Refining Co.'s No. 16 Kohler, Survey 144, located 225 feet south line, 165 feet west line, is drilling

(Continued on Page 173)

CLASSIFIED WANTS

(Continued from Preceding Page)

BUSINESS OPPORTUNITIES

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Have 1,600,000 Stockholders in 1,200 companies, oil, mining, and industrial. Ask for Price List showing name, number in list, and price.

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WANT PARTNER with money to join me in prospecting (geophysical method) rich placer gold region in Lower California. A. de Baer, P.O. Box 892, Hollywood, Calif.

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Well known corporation owns more than two million acres oil lands located in best zones this country. Desires to make connection with small American corporation with production, preference California fields. Holding company will be organized to control both interests. Have completed locations ten wells and everything is ready to start. Have no indebtedness. Send your proposition or ask particulars to Mr. Raul Casso, Box 2279, Mexico City, Mexico.

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GEOLOGISTS

OIL LOCATED before drilling. Geophysical method. Magvibrometer Instrument; take pay in oil. No oil, no pay. Except traveling and testing expenses. 95 per cent accuracy. O. P. Coffin, Caddo, Tex.

LANDS TESTED for oil before drilling by the Kem-ometer. Depths indicated in advance; take pay in oil; no production no pay, except traveling and expenses while testing. Efficiency and reliability of instruments checked in proven fields. B. B. Ownby, Box 255, Lordsburg, N. M.

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Gasoline Markets Firmer in the East

Indications for General Advance in Refinery and Tank Wagon Markets. Lubricating Oils Strengthened

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, May 20.—Gasoline markets are firming up throughout the East Coast territory, and indications are of a pending general advance in refinery and tank wagon markets. Standard Oil Co. of New York this week moved to straighten out the tank wagon situation in New York State by advancing to a flat 15 cents tank wagon basis throughout the state, with the exception of the metropolitan area, where the market is 2 cents higher. The markup to 15 cents represented advances of 2 to 3 cents in some territories where tank wagon gasoline had been selling low under the influence of local price competition. The tank car situation also developed additional strength with the action of Sinclair in advancing U. S. Motor gasoline a half cent to 9½ cents at New York, Philadelphia, Tiverton, R. I., Portsmouth, Charleston, Jacksonville and Tampa. With the exception of Standard Oil Co. of New Jersey, which is still quoting tank car gasoline at 9 cents, all leading sellers are now asking 9¼ to 9½ cents at their terminals.

Lubricating oil again strengthened in the cylinder stocks division, representing short stocks at Pennsylvania refineries rather than any appreciable pickup in demand. The cylinder oil market at the moment, it is evident, is moving more on momentum than real buying, current quotations being materially over buyers' price views in most instances.

With more favorable weather conditions at hand, refiners in the East Coast area look for a sharp increase in gasoline consumption and a general tightening up of the price situation.

Tank Car Gasoline

Volume of trading has picked up considerably, and the market is firming up. Current quotations for U. S. Motor range from 9 cents to 9½ cents, with the trade expecting the latter figure will be made the general market level in a short time. The low seller in the present market is Standard Oil Co. of New Jersey.

The leveling of tank wagon quotations throughout New York State has improved the marketing situation for independent operators, giving them a wider price spread to work on in many sections where it has been a tight squeeze between laid down wholesale quotations and the prevailing retail market for some months.

California U. S. Motor is well held at 9½ cents at New York. Acewood Petroleum Co., a prominent independent marketer, is now handling only the California product, while some other marketers are running more heavily to the Pacific Coast motor fuel.

Kerosene

The tank car market remains unchanged at 8 cents, with trading along routine lines. The domestic market situation has been adversely affected to some extent by the continued dearth of export trading in kerosene. Russia, it is reported here, is furnishing extremely strong competition to American gasoline in many export markets. Holdings of kerosene at East Coast refineries are not excessive and refiners look for the maintenance of a fairly steady market over the summer.

There has been no change in the tank wagon situation. Tank wagon kerosene and gasoline prices are now on a parity throughout the greater part of New York State territory, somewhat of a rarity. Refiners report that while the warmer weather has resulted in curtailing consumption of kerosene a little in East Coast territory, volume is holding up fairly well for this season, with a good summer business looked for.

Tank Wagon Gasoline

Of outstanding importance in the tank wagon situation was announcement by Standard Oil Co. of New York of an advance to 15 cents tank wagon and 16 cents service station throughout New York State, with the exception of the territory south of Peekskill, where the market remains at 17 cents tank wagon and 18 cents filling station, all prices less the state tax of 2 cents. The importance of this making uniform quotation at upstate points is understood when it is considered that for several months much of the business in some of the upstate markets such as Albany, Rochester, Syracuse, etc., has been done at from 12 to 13 cents tank wagon.

According to reports in local market circles, a new and important entry into the marketing field in New York will be announced within a few days. The company in question, a California producer and marketer, has been formulating an expansion program involving the invasion of eastern markets for several months, and is now about ready to open its marketing campaign in New York State. The first phases of this marketing campaign, it is indicated, will be in several of the larger upstate markets.

This development still further complicates the competitive situation in the Empire State. Standard Oil Co. of New Jersey, through the Beacon Oil Co., is now an important factor in New York marketing, and Shell interests, through the recently incorporated Shell Eastern Petroleum Products, Inc., are also conducting an aggressive marketing campaign in this area. Pan American is expected to intensify its gasoline sales efforts throughout the entire East Coast marketing area later during the summer, after its new refinery at Aruba gets into operation in a larger way and the company has greater quantities of motor fuel to distribute.

There has been a material gain in consumption of gasoline throughout the entire East Coast area this week. Weather conditions have been more favorable than at any time this season, and a marked increase in service station sales has resulted. Eastern refiners are making preparations for handling a record breaking volume of business during the summer. There are numerous rumors in circulation regarding this or that type of improved motor gasoline which several refiners are reported working on, but thus far no definite announcements in this respect have been made.

Lubs

Further gains in cylinder oil prices have developed during the current week, but volume of trading has eased off further. Operators report current prices are too high, and that many buyers have temporarily withdrawn from the market. Quotations on most grades are little better than nominal, the price spread on bright stocks being the widest experienced in many years. Current asking prices for lubs on spot follow: 600 steam refined cylinder stocks, 43 to 44 cents; 635 steam refined, 45 to 46 cents; 650 steam refined, 50 to 51 cents; 600 Pennsylvania flash, 53 to 54 cents; 630 Pennsylvania flash, 58 to 59 cents; 600 Warren E, 45 to 46 cents; 600 Oil City E, 44 to 45 cents; bright stocks, light, 63 to 68 cents; dark, 61 to 66 cents.

While buyers in many instances have withdrawn from the market anticipating a reaction in prices, current advices from the field indicate a firm feeling prevailing. Many Pennsylvania refiners are sold up to capacity over the remainder of the month, while others report they are having no difficulty in moving cylinder oils as fast as produced. The current high price level gives the refiners a wide trading margin, and the belief is expressed in some quarters here that stocks are being moved out in a small way by refiners under the open market basis, but that the refiners will make every effort to maintain their listed prices well into the summer months.

Statistically, the position of the market in Pennsylvania is firm. Current production of Pennsylvania crudes high in lubricating oil content are known to be under the demands of the refiners, and the price basis on crude continues at the high point for the year. With consumption on the increase, both in this country and abroad, refiners are definitely bullish in their price views over the next several months, and as a result of the high prices being quoted for forward positions, little or no future business is being written.

Red and pale oils have been without price change on the spot position. Refiners note a slight improvement in the demand, but volume has not yet reached the point where the market can sustain a higher price basis.

Fuel Oil

Refiners report a substantial volume of business in bunker "C" fuel oil and the market holds steady at $1.05, bulk, f.o.b. local refinery terminals. The bulk of the movement has been confined to deliveries against standing contracts, new business in the spot market being relatively quiet. Inquiry for fuel oil for industrial purposes is holding up fairly well, but consumption of heavy oils for heating purposes is showing seasonal decline.

Rumors of an impending accord among Venezuelan operators whereby crude production will be curtailed in that country have brought about a more cheerful feeling among East Coast refiners, who have been endeavoring for some months to cut bunker oil output. The rapid progress of the new Pan American refinery at Aruba is also a constructive factor in the fuel oil situation, taking a load off Atlantic Coast refineries. Hitherto, Pan American's Venezuelan production has been shipped to refineries at the North Atlantic for running, and has largely increased fuel oil output in this area.

Diesel Oil

The market is without change this week, leading refiners quoting $2.00, in bulk at refineries, and $2.06½ barged alongside within the harbor limits. There has been a steady contract movement of Diesel oil, with a fair volume of spot trading.

Successful tests of the new Packard Diesel burning aircraft motor last week attracted considerable attention to the possibilities of greater Diesel oil consumption in the aviation industry.

Gas Oil

Recycled gas oil is quoted all the way from 5 to 5½ cents on spot, with a fair amount of trading reported. Large artificial gas companies are reported to have further curtailed their consumption and are running to a great extent on stocks on hand.

Straightrun gas oil is more or less a rarity in the local market now. Practically all of the large refiners are cracking all of their gas oil, and if the straightrun product were called for, it is probable the price quoted would be materially higher than the present spot quotation for recycled stock.

Paraffin Wax

Further declines in paraffin wax developed, and the market is still in easy position, with buyers bearish in their price views. Sales are reported at 3⅞ cents per pound for 120-122 a.m.p., 4⅜ cents for 125-127 a.m.p., 4¾ cents for 130-132 a.m.p., 6¼ cents for 133-135 a.m.p., and 6½ cents per pound for 135-137 a.m.p. Sales of crude scale, 122-124 a.m.p., are noted at 3 cents, off a quarter to a half cent from previously prevailing quotations.

Export operators are reported in the market for stocks of fully refined in fair quantities, but are still underbidding the market and the volume of new business developed did not run into large totals.

Domestic consumers appear well covered on their current needs, and are not in the spot market for supplies in a large way. Many domestic consumers are carrying fairly large stocks purchased earlier in the year at prices materially over the present basis.

Refiners' stocks of paraffin wax are fairly large, and in some quarters there are definite indications of selling pressure. Recent quiet in the demand for wax has resulted in the accumulation of fairly sizeable holdings at some refineries, and holders are making efforts to cut down their surpluses. This tendency, it is reported, is particularly noticeable in Pennsylvania and in Gulf markets.

Petrolatum

Snow white has been coming in for a fair inquiry on the spot position this week, sellers continuing to hold the market at 8½ cents per pound in barrels, f.o.b. Bayonne. Lily white is unchanged at 7½ cents, and is moving in moderate quantities at this figure. The amber grades have come in for better buying, and the market holds steady at 3½ cents for the standard grade and 3¾ cents a pound for the extra. Cream holds unchanged at 6½ cents, with sales holding up fairly well for the season. Export buying has furnished the chief interest in dark green, with holders continuing to quote this grade on the basis of 2 cents per pound at Bayonne, although it is reported some stocks have been cleared out of Philadelphia under this figure.

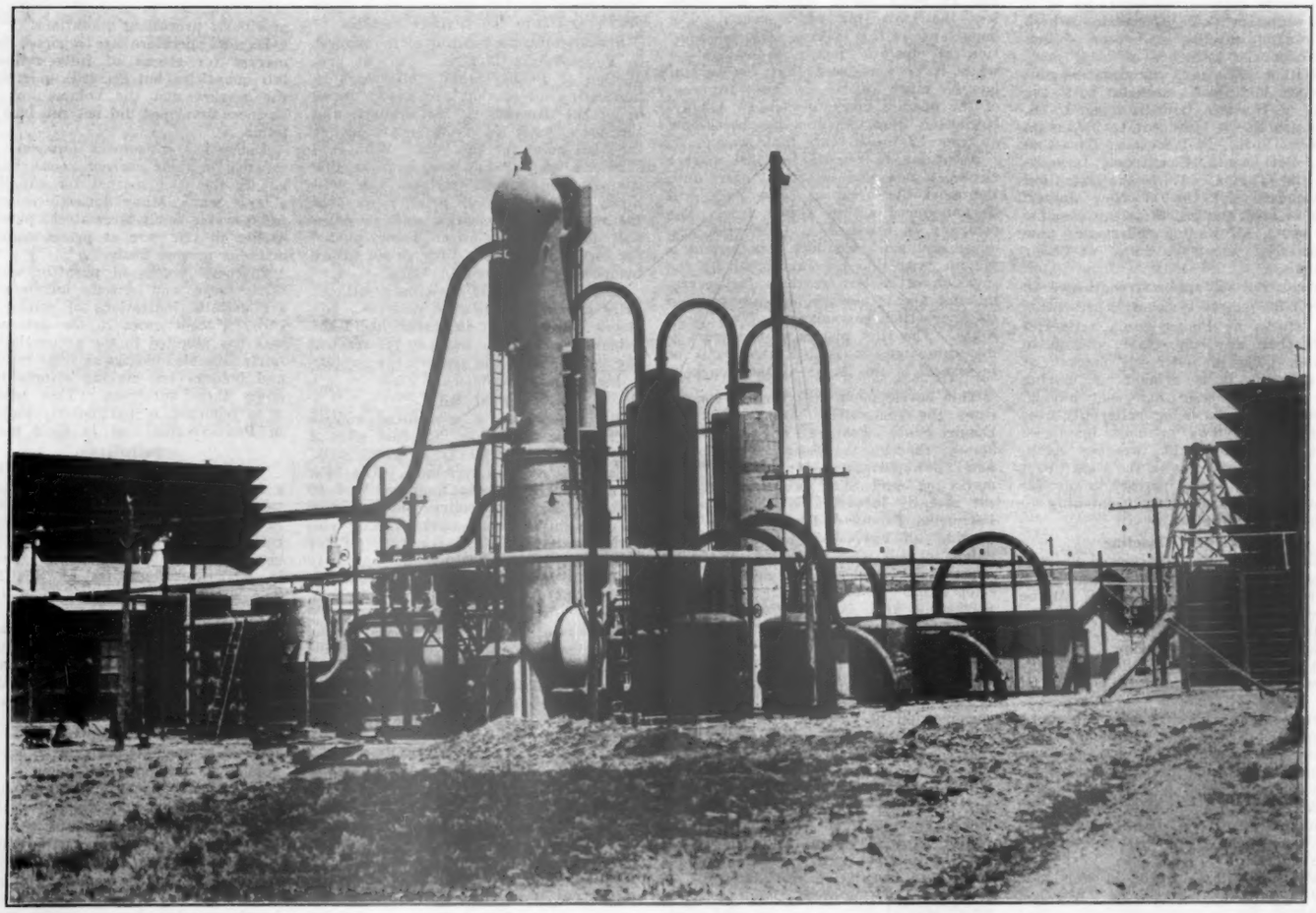
Export Markets

Foreign inquiry for gasoline thus far has failed to attain the volume which operators had looked for, and the market is just about steady. French buyers are in the market for an 8,000 cargo of refined products, to be made up principally of 64-66 gasoline, with small parcels of navy, prime white kerosene, and water white kerosene included. Little additional open market trading is reported. Atlantic Refining, Sinclair and other large companies are selling gasoline and kerosene in a small way to their foreign marketing subsidiaries from week to week, but little of this business reaches the open market. Trading at the Gulf is quiet, with a little softness reported in some quarters, although thus far the quoted price basis is understood to have been maintained.

Lub oil business in export channels is rather sluggish. Operators still have shipments coming forward against orders previously booked, but are not buying additional stocks in a large way. Current price levels, it is declared, are too high

(Continued on Page 173)

This ERECO Absorption Plant Is Good!



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Natural Gasoline Manufacture

New Principle in Pressure Control At Gasoline Plant

By D. H. Prowell
Westcott & Greis, Inc.*

Back pressure regulation is not a new subject among natural gasoline and oil refining men but during the past two years a slightly different type regulator has been developed and used quite satisfactorily in the Mid-Continent Field and to some extent in the California refineries. The scope of this paper will not cover all the details of this instrument due to lack of certain information not available at this time as well as several other reasons which make it impossible to point out all of the good features of this regulator, at least not until a later date.

This regulator is really an instrument based on a principle similar to that of a remote temperature control with which most of you are familiar. It consists of two separate units, namely, a dial type instrument containing a small air valve block with a pressure element and a double disc, double seated V port diaphragm valve designed to suit the particular regulating instrument regularly supplied. The selection and standardization of this valve was made after experimenting with a number of different makes of valves both in the laboratory and under actual field operation.

The diaphragm valve is operated by an auxiliary air or natural gas supply line of a fairly constant pressure, usually 25 pounds per square inch. This supply line regulates the diaphragm valve by means of a very sensitive air valve contained in the instrument itself.

Operation of Regulator

In other words, the actual operation of this regulator is as follows:

Assuming a constant back pressure is desired on an accumulator tank, P. D.

(Continued on Page 183)

*California Natural Gasoline Association.

GYPSY OUTPUT INCREASES

The Gypsy Oil Co., a subsidiary of the Gulf Oil Corp., is now operating 10 natural gasoline plants in Oklahoma with an output of approximately 140,000 gallons daily. The company's output has been greatly increased in the past year by the construction of new plants in the greater Seminole area. The company's plant in the Mission Pool is the largest in that section.

During the past year the company has shut down four plants. These were located in the SE NW, Section 20-18-13; SE, Section 34-21-8; and the SW, Section 32-27-6. The first two were of the compression type and the last an oil absorption plant.

Of the operating plants four are of the compression type and six of the oil absorption type.

GILMORE OPENS LABORATORY

The Forrest E. Gilmore Co., Tulsa, manufacturers of natural gasoline in the Mid-Continent Field, have established a commercial laboratory at 2548 East Admiral Place, Tulsa. Dr. Walter J. Podbielniak has been retained as consulting engineer.

The laboratory will have complete equipment for the fractional distillation of gas and gasoline. Doctor Podbielniak is widely known in the California natural gasoline industry where his laboratory equipment of practical value to operators in the operation of their plants has been installed. He recently moved his headquarters to Tulsa.

LIFTING OF PRORATION BRINGS INCREASE IN SEMINOLE OUTPUT

Natural gasoline production in the greater Seminole area of Oklahoma continues its upward trend with an increase of 8,700 gallons daily based on compilations completed on the same dates in May and April. The Oil and Gas Journal's latest monthly check which was completed May 17, shows that 18 companies with plants in six pools had a production totaling 1,146,300 gallons. This establishes a new production peak for that area, being an increase of 8,700 gallons over the output of April 18.

The fact that proration has practically been lifted in the greater Seminole area accounts for all of the recent increase. Effective May 16, an order of the Oklahoma Corporation Commission permitted an increase in the State's crude oil production from 650,000 to 725,000 bbls. daily. Since all of the proration has applied to the greater Seminole area this action in effect means that the wells will be operated without any attempt at curtailment including the elimination of the Sunday shutdown.

In reporting their production on Friday several manufacturers stated that the lifting of the proration agreement would not effect their gasoline production. In some cases the manufacturers have had excess gas and even under proration they had greater supplies than they could run through their plants.

In other cases, however, the manufacturers stated they expected their May daily production to exceed that of April due to the fact they would be able to operate their plants nearer capacity throughout the month. In several instances the Sunday shutdown feature of the crude oil curtailment program worked a greater hardship on the manufacturers than did the curtailment efforts which were continuous. The Sunday shutdown in a few cases resulted in the manufacturers having practically no gas necessitating a shutdown. Before they could get their plants back to normal operation two or three days of the week were gone.

The lifting of the proration will mean a return to normal operations and a consistent day-to-day output. A few of the manufacturers said they expected their production to increase slightly within a few days. The completion of new wells may also tend to increase the production before the first of June.

Few Changes

Very few changes developed in the operations of the individual companies. The plants now in operation practically cover the producing area of the Seminole area so there has been very little new construction over the past 30 days. There is some trading of gas supplies among the manufacturers in order to secure the most economical arrangement of gathering systems.

The Independent Oil & Gas Co. has shut down its plant in the old Seminole City Pool. This was the first plant built in the Seminole area. The gas has been turned over to the Sinclair Oil & Gas Co. which is running it to its Seminole City plant. The Independent has secured some of the Sinclair gas in the Little River area in exchange.

The Carter Oil Co. has boosted its production to 165,000 gallons daily. The lifting of the proration agreement will aid the Carter plant operations. The plant of the Gypsy Oil Co. in the Mission Pool is now making more than 50,000 gallons daily and the company expects to be in a position to maintain this output for several months. In Little River where the company takes the gasoline from the gas lift operations of the Prairie Oil & Gas Co. and stabilizes it for the market, the output totals 67,000 gallons daily.

In the Little River area the output of the plant of the Victor Gasoline Co. has increased to 15,000 gallons daily. The completion of additional wells in the vicinity of the plant made this increase possible.

NATURAL GASOLINE PRODUCTION IN GREATER SEMINOLE

	Seminole City	Bowlegs	Earlsboro	Little River	St. Louis-Pearson	Maud	Mission	Total
Amerada Pet. Corp.	.....	8,000	11,000	.....	.....	22,500	.....	41,500
Barnsdall Oil Co.	.....	.....	20,000	.....	.....	21,000	.....	41,000
Carter Oil Co.	*117,000	8,000	.....	40,000	.....	.....	.....	165,000
Crosbie & Moran	.....	.....	27,000	.....	.....	.....	.....	27,000
Cushing R. & G. Co.	.....	.....	.....	16,000	19,000	.....	.....	35,000
Empire O. & R. Co.*	26,400	45,800	.....	13,800	.....	18,000	.....	104,000
Forrest E. Gilmore Co.	.....	4,000	.....	34,000	.....	.....	.....	38,000
Gilmore Prod. Co.	.....	.....	.....	3,000	.....	.....	.....	3,000
Gypsy Oil Co.	.....	.....	.....	67,000	.....	.....	50,400	117,400
Independent O. & G.	.....	.....	.....	35,000	.....	.....	16,000	51,000
Magnolia Pet. Co.	.....	.....	6,900	.....	25,500	.....	.....	32,400
Moran & Gillespie	.....	.....	.....	.....	26,000	.....	.....	26,000
Pure Oil Co.	.....	17,000	11,000	.....	11,000	.....	.....	39,000
Powers, M. F.	.....	.....	.....	.....	16,000	.....	.....	16,000
Shell Pet. Corp.	.....	5,000	.....	.....	55,000	.....	20,000	80,000
Sinclair O. & G. Co.	90,000	80,000	6,000	.....	50,000	.....	.....	226,000
Skelly Oil Co.	.....	.....	36,000	.....	.....	8,000	.....	44,000
Victor Gasoline Co.	6,000	20,000	19,000	15,000	.....	.....	.....	60,000
Total	223,940	187,800	136,900	288,800	202,500	64,500	86,400	1,146,300
Prod. April 18	247,000	185,500	129,200	225,000	215,600	38,800	96,500	1,137,600

*Includes production of Indian Territory Illuminating Co. †Includes 50,000 production in Searight Pool.

PHILLIPS CLOSES LARGE LIQUEFIED GAS ORDERS

BARTLESVILLE, Okla., May 23.—Phillips Petroleum Co. officials announced today that a contract has been signed by one of its wholly owned subsidiaries, the Philfuels company, with the A. O. Smith Corp., pipe and automobile frame manufacturers of Milwaukee, to furnish the latter with its liquefied petroleum gas requirements for use in annealing ovens,—a load estimated to equal approximately the entire domestic gas requirements of a city of 300,000 people.

TWO COLORADO PLANTS

The Continental Oil Co. operates two plants in Colorado. These plants were purchased from the Fort Collins Oil Co., a subsidiary of the Union Oil Co. of California.

Both plants are located in Larimer County, Colorado. The plant, located in the NW, Section 30-8-68, has a capacity of 1,000 gallons daily. The second plant which is located in NW, Section 6-9-68 has a capacity of 10,000 gallons daily.

GILMORE-DABNEY PLANTS

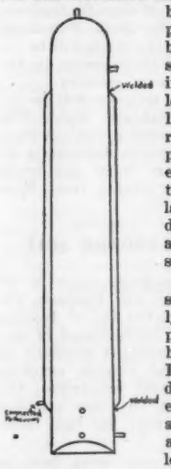
LOS ANGELES, Calif., May 16.—The Gilmore-Dabney Gasoline Corp., organized a year ago, now has two 30,000-gallon plants operating in the Signal Hill Field of Los Angeles County. An affiliated company known as the Gilmore Gasoline Plant No. 1 also operates a plant of similar capacity in the Signal Hill Field.

E. B. Gilmore of this city is president of both concerns. H. L. Eggleston is superintendent of plant operation.

A PRACTICAL SUGGESTION

VACUUM INSULATION

Loss of heat in exchangers, stills and stabilizers is minimized by various methods and insulation materials, such as asbestos cement, 85 per cent magnesia blocks and similar substances. Increase in temperature in low pressure stabilizers and in the various refrigeration processes is prevented to a certain extent by cork (granular and block), sawdust and also the above mentioned insulation materials.



Vacuum Insulated Tower

Insulation of a stabilizer is especially important and particularly with the high pressure type. It will act as a condenser throughout its entire length for the atmospheric temperature is usually lower than the temperature at any point in the column. This condensation effect in a bare column greatly hinders efficient separation and if very great will cause the column to flood. In a low pressure bare rectifier, the absorption of heat will put a greater load on the recompressor to provide the necessary amount of cooling.

The heat exchange in these cases is due to conduction and convection and can be decreased materially. The principle is the same as that used in making incandescent electric light bulbs or double walled flasks for thermos bottles.

A prerequisite is that a plant utilizing this insulating device must be carrying a vacuum on some of its machines. The tower to be insulated is surrounded by a concentric pipe or tower, allowing an air space of at least an inch. The two towers are welded together and the air between them evacuated by connecting into the vacuum line. This arrangement permits practically no heat exchange to take place between the inner and outside tower.

Practical suggestions by those connected with the construction and operation of natural gasoline plants are invited. Payment will be made as soon as suggestions are accepted. Address all communications to the Natural Gasoline Department, The Oil and Gas Journal, Tulsa.

Brief Items for Petroleum Refiners

Gasoline Tax Data Show 13.7% Gain In Gasoline Demand

Gasoline consumption in 35 states for the month of March, 1929, as indicated by reports made by wholesalers and dealers in the various states under provisions of the gasoline tax laws or gasoline inspection laws, totaled 595,383,000 gallons, compared with 523,804,000 gallons in March, 1928, an increase of 71,579,000 gallons, or 13.7 per cent. Daily average consumption for March, 1929, was 19,206,000 gallons, compared with a daily average of 15,902,000 gallons in February, 1929, an increase in daily average during March of 20.8 per cent.

Gasoline consumption in these 35 states for the three months ending with March, 1929, amounted to 1,532,980,000 gallons, compared with 1,416,662,000 gallons for the corresponding period of 1928, an increase of 116,318,000 gallons, or a 9.4 per cent increase in daily average.

Below are shown the quarterly consumption figures for the periods ended December 31, 1928, March 31, 1929 and March 31, 1928, for the states of California, Montana and Pennsylvania. Consumption during the first three months of 1929 in the State of Massachusetts is also shown.

The figures giving the quantity of gasoline sold or offered for sale, as reported under the various laws follows. In some cases they are gross figures before deductions allowed for small quantities of gasoline reshipped or sold for other than taxable use, the tax upon which, if paid, is subsequently refunded. All figures, which are subject to revision, were computed by The Oil and Gas Journal.

Gasoline Consumption by States, March, 1929

	Month of— Mar., 1929 gallons	Mar., 1928 gallons
Alabama	13,363,000	14,557,000
Arizona	5,154,000	4,028,000
Arkansas	8,335,000	8,900,000
Colorado	13,684,000	11,075,000
Delaware	2,598,000	1,452,000
Florida	22,349,000	23,080,000
Georgia	16,788,000	16,603,000
Indiana	37,608,000	27,513,000
Iowa	26,129,000	24,042,000
Kansas	27,516,000	23,144,000
Kentucky	10,700,000	9,304,000
Louisiana	13,319,000	13,456,000
Maine	3,863,000	3,305,000
Michigan	73,729,000	43,048,000
Minnesota	23,176,000	22,782,000
Missouri	27,751,000	28,243,000
Nebraska	18,647,000	16,453,000
Nevada	1,222,000	1,031,000
New Hampshire	2,597,000	2,344,000
New Jersey	33,722,000	30,208,000
New Mexico	3,042,000	2,710,000
North Carolina	18,474,000	16,598,000
North Dakota	6,319,000	6,859,000
Oklahoma	23,595,000	20,460,000
Oregon	11,464,000	10,637,000
Rhode Island	5,435,000	4,589,000
South Carolina	9,364,000	7,648,000
South Dakota	7,156,000	8,791,000
Tennessee	13,115,000	12,572,000
Texas	59,521,000	51,197,000
Utah	3,691,000	3,813,000
Virginia	14,440,000	13,276,000
Washington	19,664,000	16,994,000
Wisconsin	21,432,000	20,947,000
Wyoming	2,421,000	2,145,000
Total	595,383,000	523,804,000
Daily average	19,206,000	16,897,000
Increase over previous year:		
Amount increase	71,579,000	.....
Percentage increase in daily average	13.7%	.....

	Quarter ended— Mar. 31, '29	Mar. 31, '28
California	287,770,000	251,106,000
Montana	8,695,000	12,097,000
Pennsylvania	174,086,000	156,586,000

Note: Following are the figures showing consumption in the State of Massachusetts, for the first three months of 1929, under the new tax law, which became effective January 1, 1929; January, 26,680,000; February, 26,875,000; March, 32,467,000. Rate of tax: 2 cents per gallon.

OKLAHOMA SECTION OF CHEMICAL SOCIETY

Members of the Oklahoma section of the American Chemical Society met in Tulsa on May 17 for an inspection of the Tulsa laboratories of the Skelly Oil Co., Pierce Petroleum Corp. and the Mid-Continent Petroleum Corp. Papers delivered by Arthur L. Davis and Harold Smith were also discussed.

Mr. Davis, chief chemist for the refineries of the Empire Oil and Refining Co., outlined a method of manufacturing asphalt and road oils from pressure still bottoms. The rigid specifications on these products have limited their production and have called for a specialization. Pressure still fuels which have been allowed to stand until the carbon settles out and then reduced to the required consistency may be made into very satisfactory road oils and asphalt.

The solvent action of acetone and some alcohols was discussed by Harold Smith, of the Bureau of Mines, and included a discussion of the selective solvent action exerted by mixtures of these solvents to separate aliphatic and naphthenic hydrocarbons.

At the Skelly Oil Co.'s Tulsa laboratory a sample of natural gas was analyzed by use of low temperature fractionation to show the percentage of the various hydrocarbons in the mixture. The apparatus was designed for use in the natural gasoline industry but was of interest to the chemists representing refiners particularly because it may be used in a study of the cause of vapor-locking in ordinary gasolines.

The Pierce Petroleum Corp.'s method of determining antiknock value of gasolines and the procedure used in testing motor lubricants and greases were of particular interest also. The laboratory of the Mid-Continent Petroleum Corp. was then visited and the method of determining the anti-knock value of gasoline by use of the Midgley bouncing pin was demonstrated.

APPOINT ROGERS MANAGER OF TIDE WATER REFINERY

NEW YORK, May 18.—Tide Water Oil Co. this week announces a number of important changes in its refinery management at Bayonne. R. D. Rogers has been appointed manager of the Bayonne plant, Edward Ellsberg becoming chief engineer in charge of the general engineering department of the company, acting as engineer assistant to the vice president in charge of manufacturing, Noel Robinson. H. S. Chase has been appointed chief refinery engineer, directly responsible to the chief engineer, in charge of the designing, drafting and estimating sections of the Bayonne refinery.

James J. McGrath, former assistant general superintendent of the Bayonne refinery, becomes general superintendent, in charge of the operating division, succeeding R. D. Rogers. He will be responsible for the operation of the processing, maintenance, and construction, package manufacturing and shipping, and fire protection departments.

MICHIGAN'S NEW REFINERY

CHICAGO, May 18.—According to J. D. Wrather, president of the Amarillo Producing & Refining Co., which with the co-operation of the Swastika Oil Co. of this city will build the plant at Muskegon, the name selected for the new refining organization will be the Michigan Central Refining Co. In addition to officials of the Amarillo Co., Harry C. Kinney and Guy I. Warren of the Swastika Oil Co., will be members of the board of directors of the new refining company. The officers expect to have this new refinery running to its full capacity of 3,500 barrels daily by September 1 at the latest.

TREASURER BARKDULL MADE VICE PRESIDENT

CHICAGO, May 21.—Charles J. Barkdull, treasurer of the Standard Oil Co. (Ind.), has been elected vice president in charge of financing and accounting. He remains treasurer. He has been with the company 18 years and treasurer since March, 1927.

C. J. Barkdull

NEW OWNERS TO ENLARGE REFINERY AT LEMONT, ILL.

The refinery of the Lemont Refining Co., at Lemont, Ill., which has been sold to I. A. O'Shaughnessy, independent refinery operator, will be remodeled and the capacity increased to 5,000 bbls. daily according to an announcement of officials. The plant at present has capacity of 1,500 bbls. daily.

The refinery will be operated by the Globe Oil & Refining Co. of which Mr. O'Shaughnessy is president with operating refineries at Blackwell, Okla., and Cushing, Okla. G. G. Woodruff, formerly vice president of the Shell Petroleum Corp. as previously announced will be associated with Mr. O'Shaughnessy in the operation of the Lemont refinery.

Crude oil for the refinery will be secured from the Muskegon Field. The crude oil will be purchased through Simeral & Co., of Cincinnati. Lemont is located on the drainage canal and crude oil can be moved by tanker from Muskegon to the plant.

UNIVERSAL-STANDARD SUIT

Testimony is again being taken in the suit of the Universal Oil Products Co. against the Standard Oil Co. of Indiana involving the alleged infringement of patents owned by the plaintiff company in the operation of the Burton cracking process at the Standard refineries. The suit was filed about 15 years ago and since that time testimony has been taken from time to time.

The hearings are now being held at the Chase Hotel in St. Louis. It is expected that the present hearing will last several weeks.

SHELL WILL ERECT LARGE NEW TYPE CRACKING UNIT

NEW YORK, May 18.—Shell Petroleum Corp., in connection with a group of New York financiers, will erect at Wood River, Ill., the largest single oil-cracking unit ever undertaken in the industry, according to announcement by Fred B. Lloyd, president of the Petroleum Conversion Corp.

The Wood River unit to be erected for Shell will handle 420,000 gallons of gasoline daily. By agreement, this plant will have precedence over a similar unit being built for the Western Oil & Refining Co., contracts for the equipment of which have already been let to C. F. Braun & Co. of Los Angeles, involving a cash outlay of more than $1,250,000.

The announcement of these projected cracking plants, Mr. Lloyd declared, is of interest to the designers and manufacturers of automobile engines, and to the public generally, he added, which can look forward to getting a superior anti-knock motor fuel.

Under the plant systems heretofore in use, Mr. Lloyd said, the average pressure is usually from 700 to 1,200 pounds to the square inch, entailing a strain and stress destructive to machinery and dangerous to human life. The vapor-phase or low-pressure system, now adpoted by the Shell and Western companies, operates at but 50 pounds pressure to the square inch, elimiuating plant hazards, and giving the modern cracking plant a long life.

The Petroleum Conversion Corp. owns and is now continuously operating a plant at Texas City, under its patents covering a vapor-phase method of cracking.

RICHFIELD WILL ENTER CANADIAN MARKETS

NEW YORK, May 20.—Richfield Oil Co. of California will enter the Canadian market shortly with the starting of sale of its products through 26 service stations in Vancouver, British Columbia, operated by Paragon Oil Limited. The company is erecting a bulk distributing plant in Vancouver with steel storage for gasoline and lubricating oils. The move is part of a general expansion program which will bring the company into Eastern territory on a large scale this summer. The company is building up a tanker fleet to supply the East Coast and Northwest markets from the Long Beach refinery.

CHANGES AT TRANSCONTINENTAL

CHICAGO, May 18.—L. E. Thorpe, manager of the Transcontinental Oil Co.'s Chicago office, resigned effective May 15. A. J. Slagter, Jr., assistant manager, has also resigned. The office is temporarily in charge of George H. Homer from their Tulsa office. Mr. Thorpe states that he is not ready to announce his new connection but that he will remain in the oil business in Chicago.

WILCOX SALES ORGANIZATION

The Wilcox Oil & Gas Co. expects to start operating their Bristow refinery about June 1 and have established retail and tank car sales departments under H. E. Bangert as sales director. J. H. Austin has been named sales manager of the retail division and W. C. McCallion, formerly of the LaSalle Petroleum Corp., will be sales manager of the tank car division with general offices in Tulsa.

SINCLAIR CO. BUYS ANOTHER

CHICAGO, May 18.—The Sinclair Refining Co. has bought the Mutual Service stations of Geneseo, Ill.

GASOLINE MARKETS FIRMER IN THE EAST

(Continued from Page 169)

to interest foreign markets to any great extent.

Paraffin wax has also eased off in export trading, with the price basis weaker. Small lot trading in wax for immediate shipment is furnishing the principal activity in the export end.

Sales of fuel oil and gas oil for export continue held down to small lots but the market is showing a fairly steady tone. Fuel oil in particular is well held, both here and at the Gulf, much to the surprise of some operators, who had figured it a buyers' market on this oil.

Although quotations on cased gasoline and kerosene continue withdrawn in the open market, volume of business on these oils is showing seasonal expansion in export channels. Refiners are quoting cased stocks on specific inquiries.

Petroleum Exports

The following table shows principal exports of petroleum and refined products from New York during the past three weeks (all figures in gallons unless otherwise noted):

	Week ended		
	May 11	May 4	Apr. 27
Gasoline	55,000	1,537,200	250,000
Naphtha	3,100,000	1,041,900	160,100
Kerosene	640,000	675,100	201,300
Fuel oil	26,000	20,000	21,400
Lub. oil	2,045,300	1,649,200	1,771,600
Pet., refd.	380,000	4,286,000	798,200
	Pounds		
Petrolatum	111,000	.....	.....
Paraffin wax	1,342,000	873,700	780,000
Refined	357,000	.....	115,000
Scale	222,000	277,000	102,000
Lub. grease	1,030,000	1,150,400	1,040,600

Imports

Imports of crude and refined oils at the principal United States ports for the week ended May 11 totaled 1,726,000 bbls., a daily average of 246,571 bbls., compared with 1,977,000 bbls., a daily average of 282,429 bbls. for the week ended May 4 and a daily average of 282,107 bbls. for the four weeks ended May 11. Details follow:

(Barrels of 42 gallons)

At Atlantic Coast ports—	Bbls.
Baltimore	331,000
Boston	156,000
New York	712,000
Philadelphia	125,000
Others	236,000
Total	1,560,000
Daily average	222,857
At Gulf Coast ports—	
Galveston district	15,000
New Orleans and Baton Rouge	151,000
Total	166,000
Daily average	23,714
At all United States ports—	
Total	1,726,000
Daily average	246,571
Daily average 4 weeks	282,107

California Oil Receipts

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports during the week ended May 11 totaled 374,000 bbls., a daily average of 53,429 bbls., against 442,000 bbls., a daily average of 63,143 bbls. for the week ended May 4 and a daily average of 58,893 bbls. for the four weeks ended May 11. Details follow:

(Barrels of 42 gallons)

At Atlantic Coast ports—	Bbls.
Baltimore	123,000
New York	251,000
Total	374,000
Daily average	53,429
Daily average 4 weeks	53,893

There were no receipts at Gulf ports during the week.

All of the week's receipts at North Atlantic ports were of gasoline.

With a large California producing and refining company reported ready to enter the Eastern market in a large way within a few weeks, it is expected here that the movement of California motor fuel eastward will increase materially.

Richfield Oil Co. of California has closed substantial contracts with a number of large eastern airports for aviation gasoline, and shipments against these contracts will be started eastward by tanker almost immediately.

SOUTHWEST TEXAS

(Continued from Page 168)

at 1,285 feet; No. 17 Kohler, Survey 399, located 165 feet north and west lines, is drilling at 2,985 feet; No. 20 Kohler, Survey 251, located 165 feet north line, 2,475 feet east line, is drilling at 1,987 feet; No. 22 Kohler, Survey 395, located 495 feet west line, 165 feet north line, is drilling at 1,855 feet; No. 23 Kohler, Survey 404, is location 1,485 feet south and west lines; No. 24 Kohler, Survey 423, is location 165 feet north and west lines; No. 25 Kohler, Survey 172, is location 165 feet north and west lines.

Driscoll Field

Robert Driscoll's No. 16 Driscoll, Survey 448, located 2,650 feet east line, 4,000 feet north line, has set 200 feet of 10-inch surface casing.

Schoolfield & O'Byrne Pool

Magnolia Petroleum Co.'s No. 7-B Hahl, Survey 61, located 650 feet south line, 2,950 feet east line, is rigging up; No. 2 Hahl, Survey 250, Block 24, located 150 feet north and east lines, is drilling at 1,650 feet. G. M. Partee's No. 2 Moody, Survey 60, is location 450 feet west line, 150 feet north line; No. 3 Moody, Survey 60, located 1,548 feet north line, 150 feet west line, has derrick up.

Randado Field—Jim Hogg

Magnolia Petroleum Co.'s No. 42 Merchants State Bank, Survey 235, located 330 feet west line, 4,254 feet north line, is drilling at 1,220 feet. Randado Oil Corp.'s No. 35 Palacious, Survey 291, Block 2, located 150 feet south line, 450 feet east line, is standing at 100 feet.

Henne-Winch & Fariss Pool

George S. Marshall's No. 4 Holbien, Survey 11, Block 10, Share 3, is location 150 feet south and west lines; No. 5 Holbien, Share 3, Block 10, Survey 15, is location 150 feet north and west lines.

Schott Field—Webb

Livingston & Payne's No. 1 Guerra-Ochoa, Survey 58, located 917 feet east line, 470 feet south line, is drilling at 1,300 feet.

Reiser Field

W. O. Wheatley's No. 1 Wheatley, Survey 1,569, Block 3, located 848 feet north line, 305 feet east line, is preparing to resume drilling at 2,805 feet.

Albercas Field

Sun Oil Co.'s No. 12-A Yeager-Strohman Share 5, located 4,675 feet north line, 150 feet west line, has sand and is standing at 2,153-55 feet. Rycade Oil Corp.'s No. 8 Yeager-Strohman, Share 5, located 1,950 feet north line, 150 feet east line, is standing at 2,145 feet.

Carolina-Texas Field

W. R. Shankle's No. 1 Webster, NE SE, Survey 684, located 150 feet south and west lines, at 3,045 feet is showing some oil, looks like small well and is moving in rig. Trapshooter Reilly Oil & Royalties Co.'s No. 1 Benavides, NE NW Survey 685, located 150 feet north and east lines, is coring for sand below 2,100 feet. George S. Marshall's No. 1 Webster, Survey 684, located 150 feet north and east lines, is location.

Magnolia-Cole Field

Cole Petroleum Co.'s No. 67 Benavides, Survey 412, Block 12, located 313 feet east line, 160 feet north line, is standing at 38 feet. Magnolia Petroleum Co.'s No. 1 J. G. Valdez, Survey 754, Block 15, located 150 feet south and west lines, has derrick up.

Cole Gas Field

Trussell-Cezeau-Putman's No. 2 Bruni, Survey 10, Block 10, located 150 feet northeast and northwest lines, has set 42 feet of surface casing.

Jennings Field—Zapata

South Texas Production Co.'s No. 4-A Jennings, Cerrito Blanco grant, 8,250 feet southwest lines, 6,825 feet southeast lines, at 2,200 feet plugged back to 1,400 foot sand and is bailing. O. W. Killam's No. 4 Hinnant, Survey 74, located 980 feet west line, 150 feet south line, is at 1,685 feet drilling in rock. Magnolia Petroleum Co.'s No. 1 Cuellar, Survey 246, located 660 feet northeast lines and southeast lines, is rigging up. Trapshooter Reilly Oil & Royalties Co.'s No. 3 Hinnant, Survey 74, located 150 feet south line, 450 feet east line, sand 1,597 feet and is setting casing.

Somerset Field—Atascosa

Schimmel Production Co.'s No. 3 H. F. Gayle, C.E.P.I.&M. Survey, Block 2, located 946 feet east of No. 1, is location.

Dobrowolski Field—Bexar

Amelia Balzart's No. 3 J. P. Adams has derrick up offsetting No. 1 Dobrowolski.

Somerset Field

American Central Oil & Gas Co.'s No. 4 Mary McConnell, W. G. Baker Survey No. 138, located 806.6 feet east line, 685.5 feet south line, is rigging up. W. H. Kennon's No. 2 fee, Survey 4, located 1,500 feet north 15 degrees east of No. 1, is drilling at 983 feet.

Joe Bruner Field—Caldwell

Tips de Armond's No. 2 Carter, Gerren Hinds Survey, 170 feet west line, 147 feet north line, is drilling at 1,005 feet showing some gas. Buchanan and others' No. 1 Trap Briscoe, P. B. McCearley Survey, 150 feet south and east lines, is standing at 3,428 feet. E. R. Brawn and C. O. Miller's No. 2 R. W. Carter, Gerren Hinds Survey, 150 feet north and west lines, has derrick up.

Cranfill & Reynolds' No. 3 Hanson, James Hinds Survey, at 2,690 feet looks like a dry hole. Forest Oil Co.'s No. 1 Bridges is at 2,739 feet waiting on pump. Gulf Production Co.'s No. 2 J. L. Northcutt, James Hinds Survey, 300 feet northeast of No. 1, is at 2,676 feet swabbing; No. 3 J. L. Northcutt, James Hinds Survey, 450 feet northeast lines, 150 feet northwest lines, at 2,278 feet is drilling in chalk; No. 4 J. L. Northcutt, James Hinds Survey, 300 feet southwest of No. 4, is at 2,670 feet waiting on rig; No. 5 J. L. Northcutt is drilling in shale and boulders at 2,000 feet.

T. C. Hadley's No. 1 J. M. Hanson, James Hinds Survey, 150 feet south and east lines, is drilling at 2,675 feet in Del Rio; No. 1 Merriweather, A. Floyd Survey, 119 feet north line, 150 feet east line, at 2,720 feet plugged back showing water and very little oil; No. 2 Merriweather, A. Floyd Survey, 450 feet west line in center of tract, is drilling at 2,697 feet in Georgetown. Humble Oil & Refining Co.'s No. 3 Briscoe is drilling at 915 feet in shale; No. 4 M. Briscoe has derrick up; No. 1 C. F. Dye, James Hinds Survey, is at 2,678 feet ready to swab.

No. 1-B Floy Gray at 1,220 feet is shut down due to litigation; No. 4 L. G. Hanson, James Hinds Survey, 150 feet NE cor., is at 2,711 feet waiting on cement; No. 1 Addie Hinds, James Hinds Survey, 226 feet north line, 191 feet west line, at 2,660 feet is waiting on cement; No. 2 Addie Hinds, James Hinds Survey, 226 feet north line, 491 feet west line, at 2,694 feet swabbed 1,200 bbls., blowing out while running tubing. No. 2-B Johnson is drilling at 2,550 feet in Buda.

No. 3-B Moses & Baggett, Samuel Shupe Survey, 150 feet east line, 1,050 feet south line, is at 2,512 feet drilling in Buda; No. 4-B Moses & Baggett, Samuel Shupe Survey, 1,514 feet south line, 150 feet east line, has derrick up; No. 1 J. A. Northcutt is at 2,744 feet ready to swab; No. 1 J. L. Northcutt is at 2,655 feet waiting on cement; No. 1-B Clyant Smith at 2,070 feet is drilling in Taylor marl; No. 1-A J. R. Tiller, James Hinds Survey, 150 feet west line, 1,050 feet south line, at 2,681 feet is setting casing.

No. 2-A J. R. Tiller, James Hinds Survey, 300 feet north of No. 1-A, is at 2,442 feet drilling in chalk; No. 4-A J. R. Tiller is drilling at 519 feet in shale; No. 1-B J. R. Tiller is at 2,694 feet in Edwards; No. 2-B J. R. Tiller is down 2,600 feet in Del Rio; No. 3-B J. R. Tiller, James Hinds Survey, 150 feet NW cor., at 2,710 feet is waiting on cement; No. 3 Wright is rigging up. Luling Oil & Gas Co.'s No. 1 G. R. Carter, Gerren Hinds Survey, 150 feet north and west lines, at 2,701 feet will be temporarily abandoned.

Lutex Oil, Inc.'s, No. 5 Wilson, A. Floyd Survey, at 2,702 feet is waiting on pump. Swearingen trustee's No. 1 Caldwell County land, James Hinds Survey, at 2,503 feet is shut down due to litigation. Morgan-Duke's No. 2 Cora Malone, A. Floyd Survey, 300 southwest of No. 1, is partially rigged up. Shell Petroleum Corp.'s No. 5 New is drilling at 2,253 feet in Taylor marl; No. 1 Clyant Smith at 2,302 feet drilled in and caught fire and is still burning.

H. J. Powell trustee's No. 2 Cora Malone, A. Floyd Survey, 300 feet south of No. 1, at 2,650 feet is to shoot in Del Rio. The Texas Company's No. 8 Merriweather is drilling at 2,731 feet in the Georgetown. Turman & Brown's No. 1 Bridges, A. Floyd Survey, 100 feet east line in center of tract, is at 2,748 feet waiting on a pump.

Dale Field

The Texas Company's No. 2 Jeff Moore, J. Gilbert Survey, 600 feet northwest lines, 1,600 feet southwest lines, is drilling in shale at 1,400 feet.

Kingsville Field—Kleberg

Humble Oil & Refining Co.'s No. 5-B Dennett, Survey 38, Block 19, located 400 feet north of No. 1, is drilling at 3,200 feet; No. 4 Flato, Survey 40, Block 10, located 250 feet east line, 450 feet north line, at 5,694 feet is cutting out strainer set at 5,660 feet to drill deeper.

Cartwright Field—Live Oak

Houston Oil Co.'s No. 1 T. G. Parr, J. McMullen Survey, 532 feet southwest lines, 635 feet northeast lines, is drilling at 1,675 feet.

Agua Dulce Field—Nueces

Agua Dulce Oil & Gas Co.'s No. 1 Otto Wolters, Section 34, is standing at 2,047 feet. R. & G. Corp.'s No. 1 Brown, Section 87, is location; No. 2 Ed Allen, Lot 5, Section 6, about 1,900 feet east of No. 1, has derrick up.

Refugio Field—Refugio

Benedum & Trees' No. 4 Claude Heard, 600 feet south of No. 3, is drilling at 1,197 feet. Houston Gulf Gas Co.'s No. 5 C. Heard is being reworked; No. 2 Rooke, 700 feet north of No. 1, is drilling at 3,075 feet; No. 4 Holmes Heard is drilling at 2,829 feet. Houston Oil Co.'s No. 6 W. Heard, 517 feet west of No. 5, is drilling at 1,870 feet; No. 7 W. Heard has been spudded in; No. 6 Rooke is reworking.

Mission Drilling Co.'s No. 3 Rogers is at 4,650 feet coring and testing; No. 1 Powers is drilling at 2,484 feet; No. 1 J. F. B. Heard, 2,000 feet east of No. 1 Nellie Cummins, at 1,967 feet is drilling (same as test carried as Houston Gulf Gas Co.'s No. 1 J. F. B. Heard.) Refugio Development Co.'s No. 1 City of Refugio, street lease, is standing 3,400 feet oil in hole, injunction sustained.

Rogers-Heep and others' No. 1 Fox estate, Block 4, is location. Saxet Gas Co.'s No. 7 Claude Heard, 150 feet south of No. 6, at 3,674 feet came in making gas spraying oil and is deepening in effort to increase oil production. Sun Oil Co.'s No. 1 W. L. Rea is location.

ALONZO GIBSON DEAD IN BLACKWELL, OKLA.

Alonzo E. Gibson, widely known in the oil and gas industry, died in his home in Blackwell, Okla., Thursday, May 16. Mr. Gibson was born in Rouseville, Pa., where his father, the late Isaac S. Gibson, was a pioneer oil operator. For many years he was a meter expert for the Manufacturers Light & Heat Co. in Pittsburgh and later for the Blackwell Oil & Gas Co. in Blackwell. Besides his wife he leaves one brother, W. E. Gibson, Pittsburgh, general sales manager for the South Chester Tube Co., and three sisters, Miss Mary Gibson and Miss Lina Gibson, Oil City, Pa., and Mrs. E. W. Smiley, Warren, Pa. The funeral, Monday of this week under Masonic auspices, was followed by interment in Blackwell.

J. H. McEVOY DEAD

J. H. McEvoy, manufacturer of wireless well strainers, died in Houston, Tex., on May 11. The body was taken to Waterbury, Conn., his old home, for burial. Mr. McEvoy was ill only a few days. His son, Joseph McEvoy, who was associated with his father in business, survives him.

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINE AND NAPHTHA

OKLAHOMA (Group 3)—	May 21		May 14		May 7	
50-52 450 endpoint	.07⅝	.07¾	.07¼	.07⅜	.07¼	.07⅜
56-58 450 endpoint	.07⅝	.07¾	.07¼	.07⅜	.07¼	.07⅜
58-60 450 endpoint	.07⅝	.07¾	.07¼	.07⅜	.07¼	.07⅜
*58-60 437 endpoint (U. S. Motor)	.0788		.0776		.0763	
*60-62 437 endpoint	.0812		.07¾	.08†	.0785	
*60-62 400 endpoint	.0825		.0800		.0812	
*64-66 375 endpoint	.0855		.0865		.0862	
68-70 360 endpoint	.08½	.08⅝	.08¼	.08⅜	.08¼	.08½
64-66 437 endpoint (blend)	.07¾	.08	.07½	.07⅝	.07½	.07⅝
NORTH TEXAS—						
56-58 450 endpoint	.07½	.07⅝	.07½	.07¼	.07¼	
58-60 450 endpoint	.07½	.07⅝	.07⅝	.07¼	.07¼	
58-60 437 endpoint (U. S. Motor)	.07⅝	.07¾	.07¼	.07⅜	.07⅜	.07⅝
60-62 400 endpoint	.07¾	.07⅞	.07½	.07⅝	.07⅝	
64-66 390 endpoint	.07⅞	.08⅛	.07⅝	.07¾	.07¾	.07⅞
64-66 375 endpoint	.08⅛	.08¼	.08	.08⅛	.08	.08⅛
68-70 360 endpoint	.08¼	.08½	.08⅛	.08¼	.08⅛	.08¼
64-66 437 endpoint (blend)	.07½	.07⅝	.07¼		.07¼	
*NORTH LOUISIANA—						
58-60 437 endpoint (U. S. Motor)	.08¼		.08		.07¾	.08
*ARKANSAS—						
58-60 437 endpoint (U. S. Motor)	.08¼		.08		.07¾	.08
PENNSYLVANIA—						
52-54 Naphtha	.08½	.09	.08¾	.09	.08¾	.09
54-56 Naphtha	.08¾	.09	.08¾	.09	.08¾	.09
58-60 Gasoline	.09½	.09¾	.09½	.09¾	.09½	.09¾
60 Gasoline	.09½	.09¾	.09½	.09¾	.09½	.09¾
62 Gasoline	.09¾	.10	.09¾	.10	.09¾	.10
64 Gasoline	.10¼	.10½	.10½	.10¾	.10½	.10¾
68-70 350 endpoint gasoline	.11¼	.11½	.11¼	.11½	.11¼	.11½
CALIFORNIA—						
58-60 437 endpoint (U. S. Motor) domestic	.09	.10	.09	.10	.09	.10
CHICAGO DISTRICT (Based on Group 3)—						
50 52 450 endpoint (Naphtha)	.07½		.07¼	.07⅜	.07¼	.07⅜
56-58 450 endpoint	.07½	.07⅝	.07¼	.07⅜	.07⅜	.07½
58-60 437 endpoint (U. S. Motor)	.08	.08¼	.07⅝	.07¾	.07⅝	.07¾
60-62 400 endpoint	.08¼	.08⅜	.07⅞	.08	.07⅞	.08⅛
64-66 375 endpoint	.08¼	.08½	.08¼	.08½	.08¼	.08½
68-70 360 endpoint	.08½	.08¾	.08½		.08¼	.08½
64-66 437 endpoint (blend)	.07⅞	.08	.07⅝	.07¾	.07½	.07⅝
GULF COAST (Export)—						
58-60 (U. S. Motor)	.08¼		.08½		.08½	
60-62 400 endpoint	.09½		.09½		.09½	
61-63 390 endpoint	.09¾		.09¾		.09¾	
64-66 375 endpoint	.10		.10		.10	

*Weighted average prices May 20, 13 and 7 as reported by representative refiners. Sales to jobbers only. †No sales reported on May 13. Price given is general market.

*Louisiana, Arkansas, Mississippi, East Texas delivery.

NATURAL GASOLINE

OKLAHOMA (Group 3)—	May 21		May 14		May 7	
Grade A, 72-79.9, 375 e.p., rec. 90%	.06¾	.07	.07¼		.07⅝	.07¾
Grade AA, 80-87.9, 375 e.p., rec. 90%	.06¾	.07	.07¼		.07⅝	.07¾
Grade B, 76-83.9, 375 e.p., rec. 85%	.06¼	.06½	.06¾		.07¼	
Grade BB, 84-92, 375 e.p., rec. 85%	.06¼	.06½	.06¾		.07¼	
Grade C, 80-90, 375 e.p., rec. 78%	.06	.06¼	.06¾		.07	.07⅛
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.06¾	.07	.07¼		.07⅝	.07¾
Grade AA, 80-87.9, 375 e.p., rec. 90%	.06¾	.07	.07¼		.07⅝	.07¾
Grade B, 76-83.9, 375 e.p., rec. 85%	.06¼	.06½	.06¾		.07¼	
Grade BB, 84-92, 375 e.p., rec. 85%	.06¼	.06½	.06¾		.07¼	
Grade C, 80-90, 375 e.p., rec. 78%	.06	.06¼	.06¾		.07	.07⅛
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.07½	.07¾	.08		.08	
Grade BB, 84-92, 375 e.p., rec. 85%	.07¼	.07½	.07¾		.07¾	
Grade C, 80-90, 375 e.p., rec. 78%	.07		.07½		.07½	
CALIFORNIA—						
75-78, 375-390 endpoint	.08	.09	.08	.09	.08	.09
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.06¾	.07	.07¼		.07⅝	.07¾
Grade AA, 80-87.9, 375 e.p., rec. 90%	.06¾	.07	.07¼		.07⅝	.07¾
Grade B, 76-83.9, 375 e.p., rec. 85%	.06¼	.06½	.06¾		.07¼	
Grade BB, 84-92, 375 e.p., rec. 85%	.06¼	.06½	.06¾		.07¼	
Grade C, 80-90, 375 e.p., rec. 78%	.06	.06¼	.06¾		.07⅛	

*Louisiana, Arkansas, Mississippi, East Texas delivery.

BURNING OIL

OKLAHOMA (Group 3)—	May 21		May 14		May 7	
41-43 water white kerosene	.05½	.05⅝	.05⅝	.05⅝	.06	.06⅛
42-44 water white kerosene	.06	.06⅛	.05⅞	.06⅛	.06¼	.06½
*NORTH LOUISIANA—						
41-43 water white kerosene	.06¾	.07	.06¾	.07	.06¾	
NORTH TEXAS—						
41-43 water white kerosene	.05¼	.05⅜	.05	.05⅛	.05½	
40-42 water white kerosene	.05⅛		.05		.05⅛	.05¼
*ARKANSAS—						
41-43 water white kerosene	.06¾	.07	.06¾	.07	.06¾	
PENNSYLVANIA—						
43 Kerosene prime white	.06¾	.07	.07	.07¼	.07	.07¼
45 Kerosene water white	.07	.07¼	.07	.07¼	.07¼	.07½
46 Kerosene water white	.07⅜	.07⅝	.07¾	.08	.07¾	.08
47 Kerosene water white	.08	.08¼	.08	.08¼	.08	.08¼
300 Mineral Seal	.07¾	.08	.07¾	.08	.07¾	.08
CALIFORNIA—						
38-40 water white Kero. (high-burning test)	.06	.06½	.06½	.07	.06½	.07
Engine distillate, 43-44, 445 endpoint	.08	.08¾	.07½	.08½	.07½	.08½
Engine distillate, 42-44, 480 endpoint	.07½	.08¼	.07	.08	.07	.08
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white kerosene	.05½	.05¾	.05⅞	.06	.05⅞	.06
42-44 water white kerosene	.06	.06¼	.06⅛	.06¼	.06⅛	.06¼
GULF COAST (Export)—						
41-43 prime white	.07¾		.07¾		.07¾	
41-43 prime white	.08¾		.08¾		.08¾	

*Louisiana, Arkansas, Mississippi and East Texas delivery.

FUEL OIL

OKLAHOMA (Group 3)—	May 21		May 14		May 7	
Below 18 Fuel Oil, per bbl.	.47½	.55	.47½	.52½	.47½	.52½
20-22 Fuel Oil, per bbl.	.52½	.57½	.52½	.57½	.52½	.57½
22-26 Fuel Oil, per bbl.	.55	.60	.55	.60	.55	.60
24-26 Fuel Oil, per bbl.	.60	.65	.60	.65	.62½	.67½
26-30 Fuel Oil, per bbl.	.80	.85	.80	.85	.82½	.87½
28-30 Fuel Oil, per bbl. (industrial)	.82½	.85	.82½	.85	.85	.90
32-36 Gas Oil (industrial)	.02⅜	.02½	.02½	.02⅝	.02⅝	.02½
32-36 Gas Oil (straw color)	.02½	.02⅝	.02½	.02⅝	.02⅝	.02¾
36-38 Distillate	.03	.03⅛	.03	.03⅛	.03⅛	.03¼
38-40 Straw Distillate	.03¼	.03½	.03¼	.03½	.03⅜	.03½
NORTH TEXAS—						
Below 20 Fuel Oil	.60		.55	.60	.60	.65
24-26 Fuel Oil, per bbl.	.65		.60	.65	.65	.70
32-36 Gas Oil (straw)	.02¾	.02½	.02¼	.02¾	.02¾	.02½
38-40 Straw Distillate	.03¼		.03⅛	.03¼	.03¼	.03½
*NORTH LOUISIANA—						
18-20 Fuel Oil, per bbl.	.75		.75		.70	.75
30-32 Gas Oil	.02⅝	.02¾	.02⅝	.02¾	.02⅝	.02¾
*ARKANSAS—						
33-36 Distillate	.03	.03½	.03	.03¼	.03	.03¼
30-32 Gas Oil	.02½	.02⅝	.02½	.02⅝	.02½	.02⅝
16-22 Refinery Fuel Oil, per bbl.	.75		.75		.70	.75
GULF COAST (South Texas)—						
Gas Oil	.03½	.03¾	.03½	.03¾	.03½	.03¾
Bunker C Fuel (cargo lots), per bbl.	.75	.85	.75	.85	.75	.85
Bunker C Fuel (small lots)	.95	1.00	95	1.00	.95	1.00
PENNSYLVANIA—						
30-34 Fuel Oil	.04¾	.05	.04¾	.05	.04¾	.05
36-40 Fuel Oil	.05¼	.05½	.05¼	.05½	.05¼	.05½
CALIFORNIA—						
33-36 Distillate	.04¼	.04¾	.04¼	.04¾	.04¼	.04¾
26-32 Distillate	.03½	.04	.03½	.04	.03½	.04
15-20 Fuel Oil, Bunker (at tide water)	.65	.85	.65	.85	.65	.85
15-20 Fuel Oil (cargo lots), per bbl.	.70	.85	.70	.85	.70	.85
27 plus Diesel, per bbl.	.90	1.05	.90	1.05	.90	1.05
CHICAGO DISTRICT (Based on Group 3)—						
22-26 Fuel Oil, per bbl.	.55	.60	.60	.65	.60	.65
18-22 Fuel Oil, per bbl.	.45	.50	.50	.55	.55	.60
28-30 Fuel Oil	.85	.90	.90	.95	.90	1.00
32-36 Gas Oil	.02⅝	.02½	.02½	.02⅝	.02½	.02⅝
32-36 Gas Oil (industrial)	.02¼	.02⅜	.02⅜	.02½	.02⅜	.02½
36-38 Distillate	.03		.03	.03⅛	.03⅛	.03¼
38-40 Straw Distillate	.03⅛	.03¼	.03¼		.03¼	.03⅜

*Louisiana, Arkansas, Mississippi, East Texas delivery.

LUBRICATING OIL AND WAX

OKLAHOMA (Group 3)—	May 21		May 14		May 7	
100 vis., 2 color, 20-25 cold test	.06¾	.07	.06¾	.07	.06	.06½
100 vis., 3 color, 20-25 cold test	.05¾	.06	.05¾	.06	.05¼	.05½
150 vis., 3 color, 20-25 cold test	.07¾	.08	.07¾	.08	.07¼	.07½
150 vis., 4 color, 20-25 cold test	.07¼	.07½	.07¼	.07½	.07	.07¼
180 vis., 3 color, 23-28 cold test	.09¼	.09½	.09¼	.09½	.08¾	.09
180 vis., 4 color, 23-28 cold test	.08¾	.09	.08¾	.09	.08¼	.08¾
180 vis., 5 color, 23-28 cold test	.08½	.08¾	.08½	.08¾	.08¼	.08½
200 vis., 3 color, 23-28 cold test	.09¾	.10	.09¾	.10	.09¼	.09½
200 vis., 4 color, 23-28 cold test	.09¼	.09½	.09¼	.09½	.09	.09¼
200 vis., 5 color, 23-28 cold test	.08¾	.09	.08¾	.09	.08½	.08¾
240 vis., 3 color, 25-30 cold test	.13¼	.13½	.13¼	.13½	.12¼	.12½
240 vis., 4 color, 25-30 cold test	.12¼	.12½	.12¼	.12½	.11¾	.12
240 vis., 5 color, 25-30 cold test	.11¾	.12	.11¾	.12	.10¾	.11
280 vis., 3 color, 25-30 cold test	.15¾	.16	.15¾	.16	.13¾	.14
280 vis., 4 color, 25-30 cold test	.14¾	.15	.14¾	.15	.12¾	.13
280 vis., 5 color, 25-30 cold test	.13¾	.14	.13¾	.14	.11¾	.12
Cylinder Stocks:						
600, steam refined, light green	.13	.15	.13	.15	.11	.13
600, steam refined, dark green	.12		.12		.10	.11
190-200 vis., D color Bright Stock	.40		.39		.36	.37
150-160 vis., D color Bright Stock	.35		.34		.34	
150-160 vis., E color Bright Stock	.33		.32		.32	
Waxes:						
124-126 White Crude Scale Wax	.03		.03	.03¼	.03¼	.03⅜
PENNSYLVANIA—						
34 Neutral	.07¾	.08	.07¾	.08	.07¾	.08
34 Sundebloom	.07¾	.08	.07¾	.08	.07¾	.08
36 Miners' Neutral	.07¾	.08	.07¾	.08	.07¾	.08
150, 3 color	.21½	.22	.21½	.22	.21½	.22
180, 3 color	.27	.27½	.27	.27½	.27	.27½
200, 3 color	.28	.29	.29½	.30	.29½	.30
220, 3 color	.31	.31½	.31	.31½	.31	.31½
600, steam refined	.33½	.34	.37	.38	.34½	.35
635, steam refined	.37	.39	.39	.40	.36	.37
650, steam refined	.39	.39½	.41	.42	.39	.40
600, Pennsylvania Flash	.41½	.42	.41½	.42	.41½	.42
630, Pennsylvania Flash	.44	.45	.44		.43	
600, E filtered	.36½	.37	.37½	.38	.37½	.38
600, D filtered	.43½	.44	.43½	.44	.43½	.44
Pennsylvania Bright Stock	.52	.54	.57		.57	
*122-124 White Crude Scale Wax	.03¾		.03¾		.03¾	
*124-126 White Crude Scale Wax	.04		.04		.04	

*At New York.

GULF COAST (South Texas)—						
No. 2 color, 100 vis., pale oil	.06½	.07	.06½	.07	.06½	.07
No. 3 color, 200 vis., pale oil	.09	.10	.09	.10	.09	.10
No. 3 color, 300 vis., pale oil	.10	.10½	.10	.10½	.10	.10½
No. 3½ color, 500 vis., pale oil	.11	.11½	.11	.11½	.11	.11½
No. 4 color, 750 vis., pale oil	.14	.14½	.14	.14½	.14	.14½
No. 5 to 6 color, 200 vis., red oil	.07½	.08	.07½	.08	.07½	.08
No. 5 to 6 color, 300 vis., red oil	.08½	.09	.08½	.09	.08½	.09
No. 5 to 6 color, 500 vis., red oil	.09½	.10½	.09½	.10½	.09½	.10½
No. 5 to 6 color, 750 vis., red oil	.12½	.13	.12½	.13	.12½	.13
No. 2½ color, 200 vis., pale filtered	.11	.12	.11	.12	.11	.12
No. 2½ color, 300 vis., pale filtered	.12	.13	.12	.13	.12	.13
No. 2½ color, 500 vis., pale filtered	.14½	.15	.14½	.15	.14½	.15
No. 2½-3 color, 750 vis., pale filtered	.17	.19	.17	.19	.17	.19

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

CALIFORNIA—						
130 vis., 2½-3 color	.10¼	.10½	.10¼	.10½	.10¼	.10½
200 vis., 2½-3 color	.11½	.11¾	.11½	.11¾	.11½	.11¾
300 vis., 3-3½ color	.13	.13½	.13	.13¼	.13	.13¼
350 vis., 3½-4 color	.13½	.13¾	.13½	.13¾	.13½	.13¾
400 vis., 3½-4 color	.15	.15½	.15	.15½	.15	.15½
Red Neutral:						
200 vis., 4½-5 color	.11	.11¼	.11	.11¼	.11	.11¼
300 vis., 5-6 color	.12	.12¼	.12	.12¼	.12	.12¼
400 vis., 5-6 color	.13¼	.14	.13¼	.14	.13¼	.14
500 vis., 4½-5 color	.15¼	.15½	.15¼	.15½	.15¼	.15½
500 vis., 5-6½ color	.15	.15¼	.15	.15¼	.15	.15¼
600 vis., 6½ plus color	.16	.16¼	.16	.16¼	.16	.16¼

Note: Bright stocks are not manufaetured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	May 21		May 14		May 7	
Gasoline, U. S. Motor, 58-60 437	.09	.09½	.09	.09¼	.09	.09¼
Kerosene, water white, 41-43	.08		.08		.08	
*Fuel Oil, Bunker "C," 14-16, per bbl.	1.05		1.05		1.05	
†Fuel Oil, Diesel, 28-30, per bbl.	2.00		2.00		2.00	
Gas Oil, 32-36 gravity	.05	.05½	.05	.05½	.05	.05½
25 pale Paraffin Oil	.10½		.10½		.10½	
28 pale Paraffin Oil	.07¼		.07¼		.07¼	
285 red Paraffin Oil	.11½		.11½		.11½	
250 red Paraffin Oil	.11		.11		.11	
225 red Paraffin Oil	.09½		.09½		.09½	
200 red Paraffin Oil	.09		.09		.09	
Refined Wax:						
120-122 a.m.p., per lb.	.03⅞		.04¼		.04¼	
125-127 a.m.p., per lb.	.04¼		.04¾		.04¾	
130-132 a.m.p., per lb.	.04¾		.06		.06	
133-135 a.m.p., per lb.	.06¼		.06½		.06½	
135-137 a.m.p., per lb.	.06½		.06¾		.06¾	
Petrolatum in barrels, carload lots, per pound:						
Dark green	.02		.02		.02	
Amber	.03½		.03½		.03½	
Extra amber	.03¾		.03¾		.03¾	
Cream	.06½		.06½		.06½	
Lily white	.07½		.07½		.07½	
Snow white	.08½		.08½		.08½	

*Lighterage 5.0 cents a barrel extra. †Lighterage 6.5 cents a barrel extra.

NEW YORK (BAYONNE) EXPORT PRICES

	May 21		May 14		May 7	
Kerosene, prime white	.08		.08		.08	
Kerosene, water white	.09		.09		.09	
600, steam refined cylinder stocks, in bbls.	.43	.44	.40	.41	.40	.41
635, steam refined	.45	.46	.42	.44	.42	.44
650, steam refined	.50	.51	.47	.48	.47	.48
600, Pennsylvania Flash	.53	.54	.50	.51	.50	.51
630, Pennsylvania Flash	.58	.59	.55	.56	.55	.56
600, Warren E	.45	.46	.43	.45	.41	.42
600, Oil City E	.44	.45	.42	.44	.40	.41
Light 140-150 Bright Stocks	.63	.68	.63	.65	.60	.61
Dark 140-150 Bright Stocks	.61	.66	.61	.63	.58	.59

LOS ANGELES EXPORT PRICES

	May 21		May 14		May 7	
Kerosene, water white	.05½	.06	.05½	.06	.05½	.06
U. S. Motor Gasoline, 53-55, 437 e.p.	.07	.07½	.07	.08	.07	.08

CRUDE OIL GRAVITY TABLE

Gravity—	Okla., Kans. N. C. Tex. 1	No. La. and Arkansas 2	Smackover, Ark. 3	Stephens, Ark. 4	Wheeler (Texas Panhandle) 5	Gray County (Texas Panhandle) 6	Carson and Hutchinson (Texas Panhandle) 7	Salt Creek, Wyo. 8	Grade B & Light Crude (G. Const) 9	Somerset (South Central Texas) 10
24 and above	....	....	.90	....	....	....	....	....	....	....
Below 24	....	....	.75	....	....	....	....	....	....	....
Below 25	.85	....	....	....	....	....	....	....	1.15	....
25 to 25.9	.90	....	....	....	....	....	....	....	1.18	....
26 to 26.9	.95	....	....	....	....	....	....	....	1.21	....
27 to 27.9	1.00	....	....	....	....	....	....	....	1.24	....
Below 28	....	.78	....	.70	.90	.90	.90	....	....	....
28 to 28.9	1.05	.84	....	.74	.90	.90	.90	....	1.27	....
29 to 29.9	1.10	.90	....	.78	.90	.95	.90	1.10	1.30	....
30 to 30.9	1.15	.96	....	.82	.95	1.00	.90	1.15	1.33	....
31 to 31.9	1.20	1.02	....	.96	1.00	1.05	.90	1.20	1.36	....
32 to 32.9	1.25	1.08	....	.90	1.05	1.10	.95	1.25	1.39	1.05
33 to 33.9	1.30	1.13	....	....	1.10	1.15	1.00	1.30	1.42	1.07
34 to 34.9	1.35	1.14	....	....	1.15	1.20	1.05	1.35	1.45	1.09
35 to 35.9	1.40	1.17	....	....	1.20	1.25	1.10	1.40	1.48	1.11
36 to 36.9	1.45	1.20	....	....	1.25	1.30	1.15	1.45	....	1.13
37 to 37.9	1.50	1.23	....	....	1.30	1.35	1.20	1.50	....	1.16
38 to 38.9	1.55	1.26	....	....	1.35	1.40	1.25	....	....	1.17
39 to 39.9	1.60	1.29	....	....	1.40	1.45	1.30	....	....	....
40 to 40.9	1.65	1.32	....	....	1.45	1.50	1.35	....	....	....
41 to 41.9	1.70	1.35	....	....	1.50	1.55	1.40	....	....	....
42 to 42.9	1.75	1.38	....	....	1.55	1.60	1.45	....	....	....
43 to 43.9	1.80	1.41	....	....	1.60	1.65	1.50	....	....	....
44 and above	1.85	1.44	....	....	1.65	1.70	1.55	....	....	....

Column 1, Note—Magnolia Petroleum Co. posted schedule May 20, 1929, making price below 26 gravity 70 cents per barrel, 26-26.9 gravity 75 cents, 27-27.9 gravity 85 cents, 28-28.9 gravity 90 cents, 29-29.9 gravity 95 cents, 30-30.9 gravity $1.05, and 31-31.9 gravity $1.15, with balance of the price schedule as shown above.

Oklahoma—Carter Oil Co., Prairie Oil & Gas Co., Sinclair Oil & Gas Co., Gypsy Oil Co., The Texas Company, May 20. Champlin Refining Co. on April 15 established prices for Garber, Tonkawa, Lovell, Billings, Watchorn and Thomas Fields which are 20 cents per barrel higher than posted schedule of other buyers; 15 cents of this 20-cent advance was made effective April 1.

North Central Texas—Including Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs (Southwest Texas, Iatan and Panola, Iatan posted a flat price of 93 cents by Magnolia on January 14, 1928), Currie, Nocona and Moran. Prairie, Sinclair and Gulf, The Texas Company, May 20.

Kansas—Prairie, Sinclair, The Texas Company and Carter, May 20.

Column 3—Arkansas and North Louisiana—[Caddo, Bull Bayou, Crichton, De Soto, Haynesville, Homer and El Dorado only], Standard Oil Co. of Louisiana, Louisiana Oil Refining Corp., Gulf Refining Co., Magnolia Petroleum Co., schedule effective January 26 applies to Pine Island, Haynesville, Bull Bayou, Louisiana and El Dorado, Ark., light crude. The Texas Company January 24 posted prices below 28 gravity at 6 cents differential per degree with minimum of 60 cents for all below 24 gravity.

Column 3—February 6, Louisiana Oil Refining Corp.; February 7, Standard Oil Co. of Louisiana, The Texas Company, Gulf Refining Co., Magnolia Petroleum Co., and on February 10, Atlantic Oil Producing Co.

Column 4—Atlantic Oil Producing Co., Louisiana Oil Refining Corp., January 28.

Columns 5, 6 and 7—Humble Oil & Refining Co., May 20, 1929.

Column 8—Midwest Refining Co., May 20, 1929. All crude over 37 gravity $1.50 per barrel.

Column 9—Humble Oil & Refining Co., May 20, 1929 (schedule ends 35 and above).

Column 10—Grayburg Pipe Line Co. and Pioneer Oil & Refining Co., April 7.

CALIFORNIA CRUDE OIL PRICES

Standard Oil Co.-Union Oil Co. (Effective January 18, 1929)

Gravity—	1 Salt Lake, Potrero, Newport, Long Beach, Summerland, Lawndale Los Angeles, Fullerton, Richfield, Torrance, Olinda-Brea, Olinda-Richfield, Signal Hill, Seal Beach, Huntington Beach, Athens, Inglewood, Rosecrans-Dominguez, Watsonville	2 Whittier, La Habra, Coyote Hills	3 Midway-Sunset, Elk Hills, Lost Hills, Belridge, Buena Vista Hills	4 Montebello	5 Santa Fe Springs	6 Santa Maria, Coalinga	7 Wheeler Ridge, Fruitvale	8 Orcutt Ventura, Rincon	9 Ventura Ave.	10 Elwood Terrace
14 to 14.9	.70	.70	.50	.70	....	.50	.50	.65	.70	....
15 to 15.9	.70	.70	.50	.70	....	.50	.50	.65	.70	....
16 to 16.9	.70	.70	.50	.70	....	.50	.50	.65	.70	....
17 to 17.9	.70	.70	.50	.70	....	.50	.50	.65	.70	....
18 to 18.9	.75	.75	.56	.70	....	.56	.56	.70	.75	....
19 to 19.9	.80	.80	.62	.75	....	.62	.62	.70	.80	....
20 to 20.9	.85	.84	.68	.80	....	.68	.68	.70	.85	....
21 to 21.9	.89	.88	.74	.85	.89	.74	.74	.86	.86	....
22 to 22.9	.93	.91	.80	.90	.92	.80	.80	.87	.87	....
23 to 23.9	.97	.94	.85	.95	.96	.85	.85	.90	.90	....
24 to 24.9	1.01	.97	.90	.98	.98	.88	.88	.94	.94	....
25 to 25.9	1.05	1.00	.95	1.01	1.01	.91	.91	.98	.98	....
26 to 26.9	1.09	1.04	1.00	1.04	1.04	.94	.94	1.02	1.02	....
27 to 27.9	1.13	1.08	1.05	1.07	1.07	.98	.97	....	1.06	....
28 to 28.9	1.17	1.12	1.10	1.10	1.10	1.02	....	....	1.10	....
29 to 29.9	1.21	1.16	1.16	1.13	1.15	1.06	....	....	1.14	....
30 to 30.9	1.25	1.20	1.22	1.16	1.20	1.10	....	....	1.18	....
31 to 31.9	1.30	....	1.28	....	1.25	1.14	....	....	1.23	....
32 to 32.9	1.35	....	1.34	....	1.30	1.18	....	....	1.28	....
33 to 33.9	1.41	....	1.40	....	1.35	1.22	....	....	1.34	....
34 to 34.9	1.47	....	1.46	....	1.40	1.26	....	....	1.40	1.16
35 to 35.9	1.53	....	....	....	1.45	1.30	....	....	1.46	1.22
36 to 36.9	1.59	....	....	....	1.50	....	....	....	1.52	1.28
37 to 37.9	1.65	....	....	....	1.55	....	....	....	1.58	1.34
38 to 38.9	1.71	....	....	....	1.60	....	....	....	1.64	1.40
39 to 39.9	1.77	....	....	....	1.65	....	....	....	1.70	1.46
40 to 40.9	1.83	....	....	....	....	....	....	....	1.76	1.52
41 to 41.9	1.89	....	....	....	....	....	....	....	1.82	1.58
42 to 42.9	1.95	....	....	....	....	....	....	....	1.88	1.64

Kern River, Newhall-McKittrick, Mount Poso and Round Mountain 11 to 13.9 gravity 45 cents, 14 gravity and above 50 cents, effective October 2, 1929. On December 1, 1928, the Union Oil Co. posted Midway-Sunset, Elk Hills, Buena Vista, Lost Hills and Coalinga crude as follows: 11 to 13.9 gravity at 45 cents, 14 gravity and above 50 cents.

Column 1—Signal Hill, Seal Beach, Huntington Beach and Alamitos Heights crude, 14 to 32.9 gravity, inclusive; Richfield, Olinda-Brea and Fullerton, 14 to 30.9 gravity; Torrance and Inglewood, 14 to 28.9 gravity, Dominguez and Athens-Rosecrans, 24 to 42.9 gravity.

Column 2—Whittier crude, 14 to 22.9 gravity; Coyote Hills, 14 to 30.9 gravity.

Column 3—Kern River, Newhall and McKittrick, 11 to 19.9 gravity; Midway-Sunset, Buena Vista and Elk Hills, 11 to 33.9 gravity; Lost Hills, 11 to 34.9 gravity; oil below 14 gravity posted at 45 cents.

Column 6—Oil below 14 gravity posted at 45 cents.

Columns 8 and 9 posted by Union Oil Co. only.

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

Corsicana heavy (January 11)* ..... .80
Other fields .....See gravity table

*Posted by Magnolia Petroleum Co.

TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchinson Counties—See gravity table.

WEST TEXAS

Iatan* .....Same as North Texas
Crane-Upton-Crockett, Pecos, Winkler, and Glasscock (July 26)‡ .....$ .65
Chalk† ..... .65
Mitchell† ..... .65

*Includes Howard County and Westbrook Fields.
†Magnolia Petroleum Co., January 26, 1929.
‡Posted by Humble Oil & Refining Co. Magnolia Petroleum Co., and Gulf Pipe Line Co.

ARKANSAS-NORTH LOUISIANA

Cotton Valley (Below 36 gravity April 11) .....$ .75
Bellevue 1.20
Urania (April 22) 1.00
East El Dorado (March 16, 1927)..... 1.00
Other fields .....See gravity table

Cotton Valley crude above 36 gravity takes same gravity price schedule as shown for North Louisiana and Arkansas crude in Mid-Continent gravity price table.

Note—Cotton Valley and Bellevue posted by Standard Oil Co. of Louisiana, Louisiana Oil Refining Corp., Gulf Refining Co., and Magnolia Petroleum Co.; Urania posted by Louisiana Oil Refining Corp.; East El Dorado, Magnolia Petroleum Co., Gulf Refining Co.

GULF COAST

Grade A (May 20)* $1.30
Grade B .....See gravity table
Jennings, La. (March 14)† $1.05
Saratoga, Batson, Dayton (March 14, 1927)‡ 1.20
Markham (March 14)‖ 1.00
High Island (December 14)‖..... 1.00

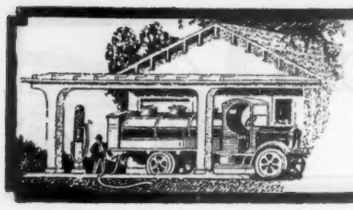
*Humble Oil & Refining Co., The Texas Company, Gulf Pipe Line Co., and Sun Pipe Line Co. †Gulf Pipe Line Co. ‡Sun Pipe Line Co. ‖The Texas Company.
‖Posted by Gulf Pipe Line Co.

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.
(Effective May 21, 1929)

Rock Creek, Wyo. $1.40
Salt Creek .....See gravity table
Big Muddy 1.43
Grass Creek, heavy (July 27, 1928)..... .90
Grass Creek, light 1.65
Mule Creek 1.20
Elk Basin 1.65
Lance Creek 1.65
Poison Spider (March 14, 1927)..... 1.00
Notches (March 14, 1927) ..... .65
Rex Lake (February 22) 1.10

(Continued on Page 186)



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns May 21.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Chicago dist.†..	15.0	16.0	...	13.0
Decatur, Ill. ..	15.2	16.2	...	13.1
E. St. Louis ..	14.4	15.4	...	12 2
Joliet	15.4	16.4	...	13 3
Peoria	15.2	15.0	...	13 1
Quincy	15.2	16.2	...	12 9
Davenport, Ia.	18.5	19.5	3 0	13.3
Des Moines ...	18.5	19.5	3.0	13 3
Keokuk	18.5	19.5	3.0	13 3
Sioux City	18.1	19.1	3.0	12.9
Duluth, Minn..	19.5	20.5	3.0	13.9
Mankato	19.1	20.1	3.0	13 7
Minneapolis ..	19.2	20.2	3.0	13 9
LaCrosse, Wis.	18.2	19.2	2.0	14.0
Milwaukee	17.1	18.1	2.0	12 9
Madison	17.3	18.3	2.0	13 1
Detroit, Mich...	18.8	19.8	3.0	14 7
Grand Rapids..	18.7	19.7	3.0	14.6
Saginaw	18.9	19.9	3.0	14 8
Evansville, Ind.	19.0	20.0	4.0	14 0
Fort Wayne ..	19.4	20.4	4.0	14.4
Indianapolis ..	19.2	20.2	4.0	14.2
South Bend ..	19.4	20.4	4.0	14 4
Fargo, N. D. ..	19 9	20.9	2.0	15 9
Huron, S. D. ..	20.3	21.3	4.0	14.7
Sioux Falls ...	19.1	20.1	4.0	14 4
K. C. Mo.* ...	17.9	18.9	3.0	11 6
Springfield* ...	17.8	18.8	3.0	12.5
St. Louis*	16.9	17.9	2.5	12 3
St. Joseph	17.5	18.5	3.0	12.2
Wichita, Kans..	16.8	17.8	3.0	11 8
Bartlesville, Ok.	16.5	17.5	3.0	11.5

*State tax 2 cents; remainder city tax.
†Effective February 20, discounts on Q.D.A. in Chicago district 2 cents off service station price on purchases of 500 gallons or more per month and 4 cents on purchases of 1,000 gallons or more per month.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	14 7	11.9
V. M. & P. naphtha	16.2	12.9
Cleaner's naphtha	16.0	13 9
Stanisol	17.0	14.4

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting. Cleaner's naphtha price of 16 cents and Stanisol 17 cents effective March 24.

STANOLIND FURNACE OIL IN CHICAGO

Less than 100 gallons	9.0
100 to 799 gallons	8.0
800 gallons or more	7.5

Note—Outside Chicago furnace oil discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

The following quantity discounts from the service station price are allowed on monthly sales of gasoline: 2,000 gallons or less, 2 cents; more than 2,000 and less than 6,000 gallons, 2½ cents; more than 6,000 gallons, 3 cents. Discounts are allowed each month, and they are not cumulative. Delivery tickets showing date and quantity delivered must be sent to the seller before the tenth of the month to secure the discount on the previous month's purchases.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Dallas, Tex. ...	13.0	17.0	2.0	13.0
Fort Worth ...	13.0	16.0	2.0	13.0
Houston	14.0	18.0	2.0	13.0
San Antonio ..	13.0	17.0	2.0	12.0
El Paso	17.0	20.0	3.0	16.0
Texarkana	14.0	18.0	2.0	13.0
Muskogee, Ok.*	13.0	17.0	3.0	13.0
Okla. City* ...	13.0	17.0	3.0	12.0
Tulsa*	13.0	17.0	3.0	10.0
Ft. Smith, Ark.	15.0	19.0	5.0	12.0
Little Rock ...	17.0	21.0	5.0	13.0

*Gasoline tank wagon price to dealers 2 cents under posted tank wagon.

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Denver, Colo..	17 0	20 0	4 0	15.5
Pueblo	17 0	20.0	4.0	15.5
Grand Junction.	22.5	25.5	4.0	19 0
Casper, Wyo...	19.0	22.0	4.0	14.0
Cheyenne	20.0	23.0	4.0	15.5
Butte, Mont. ..	24.5	27.5	5.0	20.0
Helena	24 5	27.5	5.0	20.0
Salt Lake, Utah	21.0	24.0	3.5	17.0
Albu'que, N. M.	20 0	23.0	5.0	17.0
Boise, Idaho...	23.5	26.5	4.0	19.0
Twin Falls	23.5	26.5	4 0	19 0

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

The Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Pittsburgh, Pa..	16.0	*21.0	...	14.0
Philadelphia ..	16.0	*21.0	...	14.0
Scranton	16.0	*21.0	...	14.0
Allentown	16 0	*21.0	...	14.0
Altoona	16.0	*21.0	...	14.0
Erie	13.0	*21.0	...	14.0
Dover, Del.	19.0	21.0	3.0	14.0
Wilmington ...	19.0	21.0	3.0	14.0
Springf'd, Mass.	18.0	20.0	2.0	15.0
Worcester	18.0	20.0	2.0	15.0
Boston	18.0	20.0	2.0	15.0
Providence, R.I.	15.0	16.0	2.0	15.0
Hartford, Conn.	18.0	20.0	2.0	14.0
New Haven ..	17.0	18.0	2.0	15.0

*Includes tax of 3.0 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the state. The Atlantic Refining Co. recognizes a 2-cent per gallon discount on gasoline from its posted tank wagon markets on sales to dealers for purposes of resale. The Atlantic Refining Co. also recognizes a maximum discount of 2 cents per gallon on gasoline to commercial accounts under contract for one year.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Albany, N. Y. ..	15 0	16 0	2 0	15.0
New York*	19 0	21.0	2 0	15.0
Buffalo	16 0	17 0	2 0	14.0
Rochester	16.0	17 0	2.0	14 0
Syracuse	16 0	17 0	2 0	15.0
Boston, Mass. ..	18 0	20.0	2.0	15.0
Augusta, Me. ..	20 0	22 0	4 0	15.0
Manch't'r, N.H.	20 0	22.0	4 0	15.0
Burlington, Vt..	19.0	20.0	4 0	15 0

*Prices in steel barrels.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlanta, Ga. ..	21.0	23.0	4.0	16.5
Augusta	21.0	23.0	4 0	15 5
Macon	21.0	23.0	4 0	16 5
Savannah	20.0	22.0	4 0	15.5
Birm'ham, Ala..	21.0	23.0	4.0	16.0
Mobile	21.0	23.0	4 0	15.0
Montgomery ..	22.0	24.0	4 0	16 5
Clarks'le, Miss.	19.0	21.0	5 0	12 5
Jackson	17.0	19.0	5 0	13.0
Natchez	20.5	22.5	5.0	14.0
Gulfport	22.5	24.5	5 0	14.0
Vicksburg	20.5	22.5	5.0	14 0
Jack'ville, Fla...	22.0	24.0	5 0	14 5
Miami	23.0	25.0	5.0	15.5
Pensacola	23.0	25.0	5.0	14.5
Tampa	22.0	24.0	5.0	14.5
Lexington, Ky..	20.0	22.0	5.0	15.5
Covington	20.0	21.0	5.0	15 5
Louisville	20.0	22.0	5.0	15.0
Ashland	18.0	19.0	5.0	15.5
Catlettsburg ..	18.0	19.0	5.0	15 5

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspectin fee of one-half cent on kerosene and one-fourth cent on gasoline. Pensacola and Mobile taxes include 1-cent city levy. Gulfport tax includes privilege tax of 2 cents in addition to state tax.

PACIFIC COAST TERRITORY

Standard Oil Co. (California)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
San Francisco .	19.0	23.0	3.0	15.5
Los Angeles ..	18.5	22.5	3.0	15.5
Reno, Nev.	24.0	26.0	4 0	19.0
Portland, Ore...	19.5	23.5	3 0	16.5
Seattle, Wash..	18.5	22.5	2 0	16.5
Tacoma	18.5	22.5	2.0	16 5
Spokane	22.5	26.5	2 0	20 5
Phoenix, Ariz..	18.0	22.0	4 0	20 5

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Omaha	18 25	20 25	4 0	13 25
McCook	19.75	21.75	4.0	14 75
Norfolk	18 75	20 75	4 0	13 75
N. Platte	19.75	21.75	4.0	14 5
Scottsbluff ...	19 75	21 75	4 0	14 25

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlantic City...	16 0	20.0	2.0	13.0
Newark, N. J...	16 0	20.0	2.0	13.0
Annapolis, Md..	18.0	22.0	4.0	13.0
Baltimore	18.0	22.0	4.0	12.0
Cumberland ...	18.0	22.0	4.0	13.0
Washington ...	16.0	20 0	2.0	12.0
Danville, Va. ..	19.0	23.0	5.0	13.0
Norfolk	19.0	23.0	5.0	13.0
Petersburg	19.0	23.0	5.0	13.0
Roanoke	19.0	23.0	5.0	13.0
Richmond	19.0	23.0	5.0	13.0
Charles'n, W.Va.	18.0	22.0	4.0	13.0
Keyser	18.0	22.0	4.0	13.0
Parkersburg	18.0	22.0	4.0	13.0
Wheeling	18 0	22.0	4.0	13.0
Charlotte, N. C.	19.0	23.0	5.0	13.0
Hickory	19.0	23.0	5.0	13.0
Mt. Airy	19.0	23.0	5.0	13.0
Salisbury	18.0	20.0	5.0	13.0
Charls'ton, S.C.	20.0	24.0	6.0	13.0
Columbia	20.0	24.0	6.0	13.0

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Ohio points* ..	19.0	20.0	4.0	†14.0

*Dealers and commercial accounts 2 cents under tank wagon.
†Service station price 16 cents.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
N. Orleans, La.*	14.5	18.5	5.0	16.0
Baton Rouge ..	15.0	19.5	4.0	14.5
Alexandria	16.0	20.0	4.0	15.0
Lafayette†	17.0	21.0	5.0	14.0
Lake Charles†.	17.5	21.5	5.0	16.0
Shreveport	16.0	20.0	4.0	15.0
Knoxv'le, Tenn.	20.0	24.0	5.0	16.0
Memphis	16.0	20.0	5.0	12.5
Chattanooga ..	19.5	23.5	5.0	16.0
Nashville	17.0	21.0	5.0	16.0
Bristol	20.0	23.0	5.0	14.0
Lit. Rock, Ark..	18.0	22.0	5.0	13.0

*Tax of 5 cents includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax and 1-cent parish tax.
†Includes 1-cent parish tax.

TANK WAGON CHANGES

May 9—Standard Oil Co. of Kentucky advanced the gasoline tank wagon and station prices 2 cents in Macon, Ga., to 21 and 23 cents.

May 11—Standard Oil Co. of Louisiana reduced the gasoline tank wagon and station prices 2 cents in New Orleans, La., to 14.5 and 18.5 cents.

Standard Oil Co. of Kentucky advanced the gasoline tank wagon and station prices 2 cents in Vicksburg, Miss., to 20½ and 22½ cents.

May 12—Standard Oil Co. of Kentucky reduced the gasoline tank wagon and station prices 1 cent in Jackson, Miss., to 17 and 19 cents.

May 13—Continental Oil Co. reduced the gasoline tank wagon and station prices 2 cents in Pueblo, Colo., to 17 and 20 cents.

May 15—Standard Oil Co. of Kentucky advanced the gasoline tank wagon and station prices 3 cents at Birmingham, Ala., to 21 and 23 cents, and advanced kerosene 3 cents to 16 cents.

At Montgomery, Ala., the Standard of Kentucky advanced the gasoline tank wagon and station prices 2 cents to 22 and 24 cents.

May 16—Continental Oil Co. reduced the gasoline tank wagon and station prices 2 cents in Denver, Colo., to 17 and 20 cents.

May 17—Standard Oil Co. of New York advanced the gasoline tank wagon and station prices to 15 cents and 16 cents respectively throughout the State of New York except New York City.

May 18—Standard Oil Co. of Indiana advanced the gasoline tank wagon and station prices 1 cent throughout their territory.

May 18—Magnolia Petroleum Co. reduced the gasoline tank wagon and station prices 1 cent in Tulsa, to 13 and 17 cents.

CRUDE PRICE CHANGES

May 20—The Prairie Oil & Gas Co. and other major buyers in the Mid-Continent advanced Oklahoma, Kansas and North Texas crudes purchased on the gravity basis making all oil below 25 gravity now 85 cents, an advance of 25 cents and a 5-cent increase is posted per degree increase in gravity making 44 gravity and above at $1.85. The Magnolia modified the above schedule of prices for the grades below 30 gravity making all oil below 26 gravity, 70 cents, 26-26.9 gravity, 75 cents; 27-27.9 gravity, 85 cents, 28-28.9 gravity, 90 cents; 29-29.9 gravity, 95 cents; and 30-30.9 gravity, $1.15, with the balance of the schedule as shown above

May 20.—Humble Oil & Refining Co. advanced Wheeler, Gray, Carson and Hutchinson County crudes in the Texas Panhandle in accordance with the gravity price schedule shown in tabulated form.

Crane, Upton, Crockett, Winkler, Howard and Pecos crudes in West Texas and Lea County crude in New Mexico were also advanced by the Humble as follows: Below 25 gravity, 70 cents with a 4-cent differential per degree including 36 gravity and above at $1.18. Humble advanced Gulf Coast light crude posting oil below 25 gravity at $1.15, 25 to 25.9 gravity at $1.18 with a 3-cent increase per degree with 35 gravity and above at $1.48. Salt Flat crude was posted at $1.25, Mirando at 90 cents and Gulf Coast grade A advanced 10 cents to $1.30.

May 21—The Midwest Oil Co. and the Ohio Oil Co. advanced Rock Creek, Salt Creek, Big Muddy, Grass Creek light, Mule Creek, Elk Basin, Lance Creek and Osage crudes from 10 to 29 cents as shown in the accompanying table for the Rocky Mountain area. Ohio Oil Co. advanced Lima, Wooster, Illinois, Indiana, Princeton and western Kentucky crudes 15 cents and Plymouth crude 10 cents as shown in the table of prices for the Middle Western states. Imperial Oil Co. of Canada increased Canadian crude 15 cents.

May 21—Midwest Oil Co. increased price Elk Basin crude to $1.65; Osage, Greybull, Torchlight, and Cat Creek to $1.65; and Hogback to $1.70.

PENNSYLVANIA MARKETS

OIL CITY, Pa., May 18.—There was no radical change in the Pennsylvania refined market during the past week. Gasoline was moving fairly well with a good demand for this period. Kerosene has eased off a little both in demand and price. Bright and cylinder stocks continue in heavy demand and with prices high. Neutrals were unchanged. The demand for wax is poor and the price is low. Fuel oil is holding up well as the steel mills continue to pull heavy on the output.

NATIONAL TRANSIT TARIFF

OIL CITY, Pa., May 18.—The tariff governing the movement of Texas crude oil from shipside at Point Breeze to Pittsburgh has been posted by National Transit Co. in connection with Northern Pipe Line Co. and South West Pennsylvania Pipe Lines. The rate quoted in the tariff is 39 cents a barrel and minimum shipments accepted are given as 50,000 bbls. Actual movement of the oil will start as soon as necessary changes in the pipe lines are completed. The tariff was effective as of May 16.

EMPIRE PIPE LINE RUNS

The Empire Pipe Line Co.'s April statement shows crude runs of 1,161,291.26 bbls., daily average 38,709.71 bbls.; shipments, 1,180,558.44 bbls., daily average 39,351.95 bbls.; stocks on April 30, 4,128,766.92 bbls.

STOPS KNOCKS, *thumps-pings!*

It isn't only the Power in Sinclair H-C Gasoline that makes it the most popular gas in the city—it's the comfort, too, that it gives to your driving. Your engine stays quiet and smooth—doesn't overheat. There isn't a knock, or a thump or a ping—*even on the hill!*

Those knocks that sometimes annoy you will disappear if you put Sinclair H-C Gasoline in your tank—because H-C Gasoline gives High Compression performance in new or old engines of any type. It's *all* gasoline—every drop of it! Its High Compression Anti-Knock properties are in the gasoline, *not* in any foreign substance.

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SINCLAIR H-C GASOLINE
STOPS KNOCKS

SINCLAIR REFINING COMPANY, INC., 45 NASSAU STREET, NEW YORK ATLANTA BOSTON CHICAGO HOUSTON KANSAS CITY

Jersey Report Stresses Conservation

Earnings Benefited in Proportion to Corrective Measures Undertaken. Adjustment to Market Needs

NEW YORK, May 20.—An interesting summary of the first year's operations of Standard Oil Co. of New Jersey under the administration of the company's business by a group of self-contained subsidiary units is contained in the annual report of Walter C. Teagle, rendered at the annual meeting.

"The earnings of the Standard Oil Co., New Jersey, and its percentage of the earnings of affiliated companies, including interest on investments," said Mr. Teagle, "were $108,485,686, or 9.95 per cent on the net assets of $1,090,148,929. Earnings on the capital stock outstanding at the end of the year were $4.43 per share, compared with $1.52 per share in 1927.

"A series of lean years in point of earnings was the penalty incurred by the petroleum industry through a long period of overproduction. This resulted in 1927 in the realization that new methods which science and improved technique had devised had made reasonably certain ample potential reserves of crude oil for many years to come. The belief that a shortage could not long be postponed and that the old rule of alternating periods of overproduction and deficiency justified continuous efforts to locate new pools was generally abandoned in the face of this new understanding. The balancing of the production of crude to conform to the economic requirements of the markets was recognized in many quarters as the only sound policy of insuring to the industry an adequate return upon its invested capital.

Conservation Aids Earnings

"Earnings of petroleum companies benefited in proportion to the extent to which the corrective measures undertaken in 1927 were put into effect during the past year. These earnings generally showed a material improvement over prior years, although the gains were more encouraging when contrasted with the inadequate results of these earlier years than when compared with the return secured by many other basic industries upon their invested capital. They were relatively satisfactory but mainly significant in that they reflected the benefits which accrued to the industry through its ability to decrease by 64 per cent the amount of crude and finished products which were forced into storage during the previous year. Also contributing considerably to the improvement in 1928 was a smaller accumulation of manufactured products during the winter months. This was due to better adjustment of refinery operations to market requirements.

"The gross crude production of the subsidiary and affiliated interests was 84,775,238 bbls., of which 42,773,671 bbls. were produced in the United States and 42,001,567 bbls. in foreign fields. The aggregate was an increase of 3,326,589 bbls., or 3.8 per cent over 1927, which had shown a gain of nearly 32 per cent over 1926. Domestic production was less by 7,562,125 bbls., the decline being principally due to the decreased operations of the Carter Oil Co., which reported 18,905,649 bbls. in 1928, against 28,219,254 bbls. in 1927, through the falling off in flush production in the Seminole area.

"The foreign production was greater than in 1927 by 10,888,714 bbls., much of the gain coming from our subsidiaries' operations in South America and the Dutch East Indies. Production by Transcontinental in Mexico again decreased from 4,447,000 bbls. in 1927 to 3,068,000 bbls. in 1928. Few wildcat wells were drilled during the year. Mexico's total production last year was 50,178,061 bbls., against 64,144,600 bbls. for 1927. The development of new lands remote from the present producing areas and from the coast requires a large investment on which the return would be doubtful under the present rate of taxation and high operating costs. Capital that might otherwise have gone into Mexico has been attracted to other countries where conditions are more favorable. In Venezuela, properties of the Standard Oil Co., New Jersey, and the Creole Petroleum Co. were merged as of April 1, 1928, and our producing activities in that country are being carried on through the latter company.

"Growing realization of the value of volatile products has resulted in marked improvement in processes for conserving both casinghead and natural gas for the extraction of light fractions. With the opening of each new pool of consequence action towards the prompt erection of plants to recover gasoline follows. This product has come to occupy an important place in the industry, and it is gratifying to note that plants operated by several subsidiaries in 1928 again showed increased output, amounting to 3,817,000 bbls. of casinghead and natural gas gasoline, compared with 3,493,000 bbls. in 1927.

"The record of 1928 is more encouraging in the promise of further progress that it has held out than in the material results actually attained. There is ground for optimism in the clearer understanding which the industry now has of the shortcomings of a system of haphazard production and in the realization that the large reserves of oil above ground, the increasing percentage of light products obtained from crude oil and the greater surety of finding new production where geophysical devices can be employed have placed the industry in the position where it can deliver petroleum products for essential uses indefinitely.

"There are many obstacles in the path towards the orderly exploitation of the country's petroleum resources. The present form of lease which compels an operator to drill regardless of the market for the product, it is hoped will be superseded by a new form, the operation of which will be permanently beneficial to all concerned. Under such form of lease the interests of the royalty owners and operators would be pooled through unit development, and the operators would be released from the necessity of drilling unless such course be in the common interest.

"The welfare of the industry during the current year will be dependent upon the progress which may be made toward constructive conservation and the condition of general business prosperity. The industry has it in its own hands materially to improve its position by a more widespread application of the unit operation and development of pools. Statistics of the first three months reflect an increase in stocks of 29,438,000 bbls., a situation which is menacing to the extent that these statistics forecast the course of events over the year.

"A clearer and more general realization of the necessity of keeping production and consumption in balance must exist if the results of the current year are to be as satisfactory as those of 1928."

Prairie Pipe

The Prairie Pipe Line Co. declared a quarterly dividend of 75 cents a share and an extra dividend of 50 cents a share, same as in the preceding quarter.

Solar Refining

Solar Refining Co. declared a semi-annual dividend of $1.25 on new $25 par stock, placing it on $2.50 annual basis, against $10 paid on old $100 par stock, which was recently split four for one. Since the exchange of the new stock for the old has not been completed, regular semi-annual dividend of $5 was also declared on the old $100 par stock. Both dividends are payable June 20. No dividends will be payable on the old stock after November 1.

Twenty Representative Stocks

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Saturday, was as follows:

January 26	57.44
February 2	57.55
February 9	55.28
February 16	55.35
February 23	54.92
March 2	56.43
March 9	55.96
March 16	58.63
March 23	58.52
March 30	58.57
April 6	58.26
April 13	58.52
April 20	58.46
April 27	58.34
May 4	59.13
May 11	59.75
May 18	59.30

Pan American

Report of Pan American Petroleum & Transport Co. and subsidiaries for year ended December 31, 1928, shows net profit of $10,071,576 after interest, depreciation, depletion, federal taxes and

INDEPENDENT OILS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Kennedy Building, Tulsa, Okla.

1926 High	1926 Low	1927 High	1927 Low	1928 High	1928 Low	Par value	Stocks	For week ended May 18 Sales	Open	High	Low	Last	Change
$6.75	.45	2 7/16	.55	1½	.53	$5	Amer. Con. Oilfields	2,700	½	½	⅜	½	
..	..	7½	2¾	9½	3⅛	N.P.	Amer. Maracaibo	6,100	4⅞	4⅞	4¼	4¾	
..	..	2¾	1	4½	2¼	$10	Argo Oil	1,000	3¾	3⅞	3⅛	3⅛	
85¼	60	40	20½	55	32¾	N.P.	British American	No sales.					
28⅜	9¼	28¼	15½	4⅓	3⅞	25c	Carib. Syndicate (new)	11,300	3¾	4⅞	3¼	4½	
..	..	58¾	40¼	90⅞	54	$20	Cities Service	1,500	116½	116½	116⅛	116½	
..	..	95⅜	87	103½	94½	100	Cities Service, pfd.	1,200	98⅛	98½	98	98⅜	
..	..	8⅞	7⅜	9⅝	8⅞	10	Cities Service, pfd. B	100	9	9	9	9	
3½	1¾	3⅞	1⅛	3¼	76	1	Colombia Syndicate	9,300	1¼	1¼	1	1⅛	
..	..	9¾	6⅜	8⅞	6¼	10	Consolidated Royal	No sales.					
16	10	14⅞	9½	17½	9½	N.P.	Creole Syndicate	13,000	8⅝	8⅞	8½	8½	
..	..	3	.50	3¼	.76	N.P.	Crown Central	600	1¾	1¾	1¾	1¾	
7⅞	6¾	12	4	33½	3¼	N.P.	Darby Petroleum	7,500	15⅝	17⅞	15	15	
..	..	2½	74	2¼	1	N.P.	Derby Oil & Refining	10,200	4¼	6⅜	4½	6⅜	
..	..	16¾	4	21⅛	7½	N.P.	Derby Oil & Refining, pfd.	300	28½	29½	28½	29½	
..	..	2	.40	.53	.15	N.P.	Gilliland ctfs.	No sales.					
98	92	118	86¼	165	101⅛	$25	Gulf Oil Corp.	33,100	167⅞	189	167⅞	186	
$3.00	.83	2½	.80	3⅜	1	5	Intercontinental Pet.	74,200	2⅝	2⅞	2½	2⅞	
..	..	2¼	1⅛	3	1¼	N.P.	Kirby Petroleum	1,300	1⅞	1⅞	1⅝	1⅝	
12¼	5¾	10⅞	5⅛	9⅜	5⅛	25	Leonard Oil & Dev.	2,800	5	5	5	5	
27	20	27½	20	43⅞	20	N.P.	Lion Oil & Refining Co.	2,400	36¾	36¾	35⅛	35⅛	
46	30	59⅜	37	69⅛	48⅛	$25	Lone Star Gas	1,400	71⅞	75⅝	72⅛	75	
2⅞	1	2⅞	.80	1⅞	.50	1	Magdalena Syndicate	4,800					
34	12½	52	12	48½	32	N.P.	Margay Oil	No sales.					
8	5½	12⅛	5	8	2¾	N.P.	Mexico-Ohio Oil	200	5	5	4½	4½	
1¾	1⅛	1½	1	1¾	.76	$1	Mountain & Gulf	3,100	1⅛	1¼	1	1	
26	23	29¼	22¾	28⅞	19½	10	Mountain Producers	1,200	17¾	18	17⅝	17⅝	
6⅝	5	5⅞	4⅝	5⅝	4¼	5	New Bradford	300	4	4¼	4	4¼	
..	..	16	9¼	11⅞	7½	1	New Mex. & Ariz.	1,400	6½	6½	6¼	6⅜	
..	..	12¾	9½	14¼	8½	N.P.	North Central Texas	300	11	11¼	11	11¼	
10⅛	5⅞	9⅜	3¼	6	2⅛	N.P.	Pandem	1,100	2¼	2¼	2	2	
12¼	11¾	12½	7	15⅝	8½	N.P.	Pantepec Oil	1,900	7	7¼	7	7	
22¾	12	13½	5⅛	7¾	4⅞	N.P.	Pennok Oil	No sales.					
17	8½	24⅜	7	18	4⅞	25	Red Bank Oil	No sales.					
30¼	12	15½	3½	12⅞	4½	N.P.	Reiter-Foster	16,400	6	7⅞	5⅞	6⅞	
7	4½	7	4½	12	4½	N.P.	Ryan Consolidated	1,900	7½	8⅜	7¼	7⅞	
10	7½	8	5¼	7¼	5½	$10	Salt Creek Cons.	200	3½	3½	3½	3½	
35	24⅛	35½	27¼	35	23⅛	10	Salt Creek Prod.	3,000	20½	20½	19½	19½	
6⅞	1¼	7	1¼	3½	1	5	Savoy Oil	No sales.					
27	7⅝	26½	17	22⅞	13	10	Tidal Osage	2,500	15	16	14¾	15¾	
25¾	7⅝	23¾	15	21¼	13⅛	10	Tidal Osage, nonvoting	5,300	14⅞	16	14½	15¾	
92	63½	92	63½	93¾	75	100	Transcontinental, pfd.	No sales.					
8	4½	7⅜	4¼	9⅛	4¾	5	Venezuelan Petrol	3,600	4½	4⅝	4½	4½	
8⅛	5½	8	4¾	8¼	4⅞	$1	Woodley Petroleum	1,100	5⅞	5⅞	5¾	5¾	
6½	6	6	1¾	8⅜	2⅛	25	Y Oil & Gas (new)	300	2⅝	2⅝	2⅝	2⅝	

TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Members of New York Stock Exchange, Kennedy Building, Tulsa, Okla.

1926 High	1926 Low	1927 High	1927 Low	1928 High	1928 Low	Listed capital	Par value	Stocks—	Div. rate	Last paid	For week ended May 18 Sales	Open	High	Low	Last	Change
32⅞	24¼	37⅝	27⅝	43⅞	27½	(sh) 922,075	N.P.	Amerada Corp.	50cQ	Oct. 31, 28	23,000	31⅜	31⅜	27½	28⅛	— 3¼
74	39⅞	82½	35⅛	85	51¼	(sh) 209,180	N.P.	American Republics Corp.	.....	.....	3,600	54½	54½	50	50	— 4½
60	44¾	50¼	35	53⅜	37½	$57,260,300	$25	Associated Oil	50cQ	Dec. 31, 28	10,000	45	45¼	45	45	
128⅜	97	131⅜	104	66⅜	50	50,000,000	25	Atlantic Refining	25cQ	Dec. 15, 28	203,900	70⅞	70⅞	67½	68½	— 2½
33½	23½	35½	20¾	53	20	35,194,000	25	Barnsdall Corp.	50cQ	Feb. 5, 29	1,054	47⅜	47⅞	44½	45⅜	— 1⅝
94½	50	96¾	65	94⅞	68	20,785,400	100	General Asphalt	.....	.....	58,600	77	87⅞	75⅝	82¾	+ 4⅞
72	50¼	175¾	60⅛	167	79	25,000,000	100	Houston Oil	.....	.....	9,100	96	96	90½	93	— 3⅛
34	19⅝	32¾	17⅝	38⅜	21¾	(sh) 959,457	N.P.	Independent Oil & Gas	50cQ	Jan. 31, 29	23,700	38⅛	39¼	37⅛	38	— ⅞
12¾	7½	12½	7⅝	39⅝	9	8,203,080	$10	Indian Refining	.....	May 31, 24	59,700	48	48	43½	45¼	— 2½
25⅞	16½	37¾	20½	39⅛	27⅜	(sh) 3,992,122	N.P.	Lago Oil & Transport	.....	May 1, 27	3,900	29	29½	28	29½	— ⅝
19⅞	12	18⅛	10	19¾	9⅝	(sh) 1,237,078	N.P.	Louisiana Oil Refining	.....	.....	19,100	14⅞	14⅞	14	14¼	— ⅝
28	16½	22¾	12	25½	12½	(sh) 330,000	N.P.	Maracaibo Oil	.....	.....	900	16⅛	16⅛	15	16¼	— ½
63⅜	49¼	58½	31	49¾	33	(sh) 2,316,692	N.P.	Marland Oil Co.	.....	Mar. 31, 27	31,500	39½	39¾	37¼	38	— 1⅝
13¾	6	9¼	3	73	4⅝	(sh) 945,939	N.P.	Mexican Seaboard	.....	Dec. 15, 20	30,600	53¾	53⅞	50¼	51	— 2¾
37	20½	39⅜	25½	44½	25⅛	(sh) 1,357,461	N.P.	Mid-Continent Petroleum	50cQ	Feb. 15, 29	33,300	36	36⅜	35	35⅞	— ¼
104¼	90	105	97	120½	103¼	$6,718,000	$100	Mid-Continent Petroleum pfd.	$1.75Q	Sept. 1, 28	No sales.					
2½	½	3¾	1⅝	7⅜	2⅜	24,298,850	10	Middle States	.....	July 1, 23	6,800	4½	4½	4⅛	4⅛	— ⅛
76½	56⅛	65⅞	40⅛	54⅞	38¼	$48,807,400	$50	Pan American P. & T.	.....	Oct. 20, 27	5,500	59¼	61¼	58	59½	— ½
78⅜	56⅞	66⅜	40¼	58⅞	37⅜	121,097,900	50	Pan American P. & T. B.	.....	Nov. 15, 24	196,100	62¼	65⅛	59⅛	62⅝	— ⅝
46	30	37⅞	16¾	28⅜	15½	(sh) 400,000	N.P.	Pan American Western B.	.....	Jan. 30, 27	100	14½	14½	14½	14½	+ ½
32	4½	18⅞	8	21¾	11½	(sh) 198,770	N.P.	Panhandle P. & R.	.....	.....	500	12¼	12½	12¼	12¼	— 1¼
99⅜	51	83	54	108	70	$2,935,200	$100	Panhandle P. & R. pfd.	.....	July 2, 23	300	62	62	62	62	— 5
57⅜	40	60¼	36¼	53⅞	35¼	(sh) 2,406,796	N.P.	Phillips Petroleum	37½cQ	Jan. 2, 29	12,400	41⅜	41⅜	40½	40⅞	— 1½
....	....	1⅛	½	5¼	½	$29,622,925	$25	Pierce Oil Corp.	.....	.....	4,100	2⅝	2⅝	2½	2½	— ¼
7	2¼	5½	2½	7	3½	(sh) 2,500,000	N.P.	Pierce Petroleum	.....	.....	4,000	5⅛	5⅛	4¾	4⅞	— ½
60¼	48	55½	45⅝	68	46	60,000,000	25	Prairie Oil & Gas	.....	Aug. 31, 27	25,900	59¾	59¾	57	57¼	— 2½
137½	122½	190	130¾	280	172	$101,250,000	$25	Prairie Pipe	75cQ*	Mar. 31, 29	21,300	60	61	59½	60	
20¾	11	33⅞	16¾	29⅞	16	$37,450,850	$50	Producers & Refiners	.....	Sept. 15, 23	1,200	21¼	21¼	20⅜	20½	— ¾
41¾	30¾	50	36⅞	49⅝	41	2,845,350	50	Producers & Refiners pfd.	.....	May 1, 25	12,000	42½	43½	41½	43½	
31	25¼	33½	25	31⅝	19	75,959,350	25	Pure Oil Co.	25cQ	Dec. 1, 28	42,300	29⅛	29½	27½	29½	+ ¼
27½	22	28⅝	25⅜	56	23	47,025,000	$25	Richfield Oil	.....	Nov. 15, 28	18,400	47⅜	47½	44½	46	— 1¼
57⅜	47⅜	54½	44¼	64	44⅝	(sh) 611,303	13.40	Royal Dutch, N. Y. shares	50cQ	Jan. 10, 29	4,600	52	53¼	51⅝	52½	+ ½
48⅝	40½	47⅞	41⅜	57½	40⅝	(sh) £30,000,000	£1	Shell Transport & T.	$1.455	July 23, 28	No sales.					
31	24	31¾	24⅝	39¼	23¼	(sh) 20,000,000	N.P.	Shell Union Oil	35cQ	Dec. 31, 28	42,500	29¾	30	28¾	29⅝	+ ⅛
28⅝	15⅛	26⅜	14¼	27¼	18½	$8,357,000	$10	Simms Petroleum	10cQ	Dec. 15, 28	99,100	30⅜	30⅜	29¼	29½	— ½
24⅞	16¾	22⅜	15	46¾	17⅜	(sh) 4,501,915	N.P.	Sinclair Consolidated	.....	.....	1,160	38⅝	38⅞	37½	38	— ⅝
99½	90	104½	97	110	102½	$16,604,660	$100	Sinclair Consolidated pfd.	$2Q	Nov. 15, 28	100	108½	108½	108½	108½	
37⅛	26⅝	37⅜	24⅛	42⅝	25	27,396,590	25	Skelly Oil Co.	50cQ	Dec. 15, 28	39,500	43⅝	43⅞	40	43⅜	— ⅛
63⅝	51½	60¾	50⅜	80	53	(sh) 12,594,098	N.P.	Standard Oil of California	65½Q	Dec. 15, 28	49,700	79½	79⅝	77⅛	77⅞	— 1⅝
46⅜	37½	41⅜	35⅛	59⅜	37¾	$611,120,700	$25	Standard Oil of New Jersey	25cQ*	Dec. 15, 28	150,100	61⅞	61⅞	59	59¾	— 2¼
47¼	30⅝	34⅛	29¾	44¼	28¾	427,973,275	25	Standard Oil of New York	40cQ	Dec. 15, 28	91,900	43	43	41⅛	41½	— 1⅝
41⅝	30⅛	34⅞	30	77	31½	(sh) 1,206,073	N.P.	Sun Oil	25cQ	Dec. 15, 28	1,500	64	63	62	63	— 1⅝
5¼	1	6½	3⅛	14¼	2½	(sh) 1,267,000	N.P.	Superior Oil Corp.	.....	Dec. 20, 20	40,100	8¼	8¾	7¾	8½	+ ⅛
58	48	58	45	74¾	50	$211,076,650	$25	The Texas Corporation	75cQ	Jan. 1, 29	31,900	65⅜	65⅝	64	64⅞	— ⅝
19½	12	18⅞	12	26⅝	12⅛	8,380,340	10	Texas Pacific Coal & Oil	.....	Jan. 3, 28	12,800	20⅝	20⅝	19⅝	19½	— 1⅛
39¼	27	29⅛	19	41½	19⅝	(sh) 2,168,410	N.P.	Tide Water Oil Co.	20cQ	Dec. 15, 28	13,100	37¼	38	35½	38	+ 1
103	87¼	90⅛	85	100⅛	86	$20,705,200	$100	Tide Water Oil Co. 5% pfd.	65½cQ	Dec. 15, 28	1,000	87¼	89	86¾	88	— 1⅛
27	20⅞	19¼	15¾	25	14¾	(sh) 4,796,158	N.P.	Tide Water Associated	.....	Aug. 1, 27	51,500	22¼	22½	20⅞	21⅛	— ⅞
5½	3	10⅜	3¾	14¾	7¼	(sh) 3,742,029	N.P.	Transcontinental Oil	.....	.....	84,300	13	13¼	12⅛	12¾	— ¾
58⅜	37¼	56½	39⅝	58	42¾	$94,798,100	$25	Union Oil of California	50cQ	Nov. 10, 28	7,500	50⅜	50⅜	49½	50⅜	— ¼
120⅜	84¼	127½	94	128⅛	110	31,061,200	100	Union Tank Car Co.	$1.25Q	Dec. 1, 28	300	138	139¾	138	139¾	— 7¾
30⅛	23½	34½	24½	44⅞	26	(sh) 356,000	N.P.	Warner Quinlan	50cQ	Jan. 2, 29	12,400	33¾	33¾	31¾	33⅞	— ⅞
29¾	25⅛	27½	20	38	20⅛	(sh) 490,000	N.P.	White Eagle Oil & Refining	50cQ	Jan. 20, 29	3,300	35	35⅞	34½	35⅞	+ ⅞
								Wilcox Oil & Gas	.....	.....	7,700	26⅞	26⅞	25½	26	— ⅞

*Also extras. †Ex-dividend.

STANDARD OIL STOCKS ON NEW YORK CURB

21	16	21⅝	17⅞	22⅜	14⅞	£4,126,460	£1	Anglo-American Oil	.....	June 6, 28	7,800	.....	16⅛	14½	15¾	
....	....	3¾	¾	5	1¼	(sh) 500,000	N.P.	Atlantic Lobos	.....	.....	2,900	.....	2	1½	1¾	
76	65	69	50	56½	44½	1,000,000	25	Borne Scrymser	$1S.A.	Oct. 15, 28	No sales.					
59½	42	60	45	76	53	10,000,000	50	Buckeye Pipe Line	$1Q	Dec. 15, 28	400	.....	70⅛	70	70	
82½	65	126	76½	161	117	3,000,000	25½	Chesebrough Mfg.	$1Q	Dec. 28, 28	600	.....	170⅛	170	170⅛	
25⅞	17½	22⅝	16¼	23	16	36,057,840	10	Continental Oil	.....	Dec. 15, 27	17,800	22⅞	23	22⅛	22⅝	
137	102	137	89	114	67	1,500,000	50	Cumberland Pipe Line	$1A	Dec. 15, 28	No sales.					
63¾	43	68½	47	88	64⅛	5,000,000	100	Eureka Pipe Line	$1Q	Nov. 1, 28	No sales.					
32½	9⅞	13½	3½	13	4¼	16,000,000	100	Galena Signal Oil	.....	June 30, 25	No sales.					
68½	52	68½	54	114¾	59¼	73,117,577	25	Humble Oil & Refining	30cQ*	Jan. 1, 29	13,200	121¾	121⅞	117	117½	
144½	125½	182	123¾	290½	176½	20,000	100	Illinois Pipe Line	10%S.A.	Dec. 15, 28	45,000	323½	323½	310	310	
....	....	64¾	37¾	104	56¾	(sh) 6,458,267	N.P.	Imperial of Canada	25cQ	Dec. 1, 28	1,600	115¾	115¾	113⅝	115	
72½	58	94½	61	91⅞	74⅜	$5,000,000	$50	Indiana Pipe Line	$1Q	Feb. 15, 29	1,600	92	96	89	94¼	
35½	28¾	39	28¼	55	35	(sh) 7,123,444	N.P.	International Petroleum	25c	Nov. 30, 28	5,800	53⅝	53⅝	50⅜	51¼	
20¾	12½	24	13½	32⅜	19⅜	$6,363,350	12.50	National Transit Co.	25c	Dec. 15, 28	4,100	23⅞	24	23¾	23¾	
51½	27¼	44½	31¼	75	38½	5,000,000	100	New York Transit	.....	July 15, 26	100	85	85	85	85	
80½	64	100	70	99	56½	2,000,000	50	Northern Pipe Line	$3S.A.	Jan. 2, 29	100	58¾	59	58¾	59	
67¾	55¾	67⅞	52	84	58½	60,000,000	25	Ohio Oil Co.	50cQ*	Dec. 15, 28	5,900	70⅛	70⅛	67¾	68	
24¾	15	39	12	84	28	10,000,000	25	Penn Mex. Fuel	$1.25	Dec. 15, 28	100	29⅞	29⅞	29⅞	29⅞	
220	84½	201½	175½	220	167	4,000,000	100	Solar Refining	$5S.A.	Dec. 20, 28	200	43½	43½	43½	43½	
74½	61½	27¼	15½	19	15	1,000,000	10	Southern Pipe Line	$2	Dec. 1, 27	100	21	21	21	21	
50	34½	41½	35	71⅞	36¾	2,000,000	25	South Penn Oil	50cQ	Dec. 31, 28	3,000	56⅝	56⅝	53½	55¾	
56	47½	83	55½	102	70	3,500,000	100	Southwest Pa. Pipe Lines	$1Q	Oct. 1, 28	50	68½	68½	68½	68½	
70½	60½	81½	64⅝	95⅞	70⅞	228,415,463	25	Standard Oil of Indiana	61½cQ	Dec. 15, 28	21,400	58¾	58⅞	56⅛	56¾	
36½	16½	20⅞	14⅝	27¾	15	8,000,000	25	Standard Oil of Kansas	.....	June 16, 24	700	19	19	18½	18½	
134⅜	108	130	111½	179¾	122¼	17,012,559	10	Standard Oil of Kentucky	$1Q	Dec. 31, 28	4,400	38⅞	39	38⅛	38¼	
51⅛	42	49⅛	40	54⅞	39⅞	4,559,850	25	Standard Oil of Nebraska	63cQ	Dec. 20, 28	1,000	49½	50¼	49½	49½	
372	288	87½	72	134	71	14,000,000	25	Standard Oil of Ohio	62½cQ	Jan. 2, 29	350	127	127	124½	126¾	
21	15	21	14½	23½	16	861,000	25	Swan Finch Co.	.....	Nov. 1, 19	No sales.					
109⅜	90¼	....	....	111	72	125,619,000	25	Vacuum Oil	75cQ	Dec. 20, 28	4,300	124¾	124¾	122	122	

*Also extras.

minority interests, etc., equivalent to $3 a share (par $50) earned on 3,360,649 shares of combined common and common B stocks outstanding at end of year.

Sinclair Consolidated

Stockholders of the Sinclair Consolidated Oil Corp. approved an increase in common stock from 5,500,000 to 10,000,000 shares, sanctioned an employes' stock purchase plan, and re-elected the board of directors, electing three new members. Harry F. Sinclair was re-elected chairman of the board. The number of shares voted was 4,378,861, or about 80 per cent of the total, against an average of 68 per cent at the eight previous annual meetings. An extra dividend of 25 cents was declared in addition to the quarterly dividend of 50 cents on the common.

Earl W. Sinclair, president of the company, declared earnings were substantially better than during the first three months of 1928. "The production situation is being handled is a very intelligent way, and it is believed that before very long production and consumption will be on a parity. There has been in effect in the Mid-Continent Field a prorating scheme. This is being lifted, the opinion of people in that field being that the call made on that district for the oil that it produces will absorb the supply. The price situation at this time is unhealthy. Neither crude nor refined

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ROCKY MOUNTAIN AREA

(Continued from Page 61)

Garland, NE NE Section 11-28-11, in the Kutz Canon district, where several gas wells have been drilled. This well had a considerable flow of gas at 1,820 feet in the top of the Picture Cliff sand and more gas, with which was sprayed some oil, at lower horizons. At around 3,000 feet it was in the upper Mesa Verde and at last reports was bottomed at 3,065 feet and fishing for bailer. Last week the bailer was lifted to within 800 feet of the top, where it stuck. It was then caught with a spear and lifted another 100 feet, where the obstruction bridged the hole. The gas accumulated and caused a blowout, throwing the water 300 feet above the casing top. Sunday there was another explosion, and the gas caught fire. The flow is estimated at 3,000,000 feet. The explosion created a crater about 30 feet deep which filled with water. Tuesday the well was still burning. The water was being pumped out of the crater and as soon as this was finished it was planned to attempt to smother out the flame with steam. J. M. Crawford, superintendent, was at the well when the explosion occurred. His 5-year-old son was severely burned and Mrs. Crawford's clothing caught fire. Mr. Crawford was painfully burned while extinguishing the flaming clothing worn by his wife.

Rattlesnake Dome

The Continental Oil Co.'s No. 17 Santa Fe, C NE Section 2-29-19, Rattlesnake Dome, has been drilled about 3 feet deeper to 6,774 feet. Efforts to underream and lower the 4¾-inch casing to shut off the water coming in just above the oil horizon were unsuccessful and other plans will be worked out. At last reports a rat hole was being spudded after running tubing with a packer on the end. The San Juan Leaseholds Co.'s No. 3 Bowman, NW NE Section 30-30-15, Meadows district, is drilling at 2,400 feet in shale, and the Childers Drilling & Producing Co.'s No. 2, Section 24-31-16, Westwater structure, is drilling at 2,435 feet in the Dakota series. The upper sand was reported dry. A little sulphur water was encountered before entering the Dakota. The Reserve Oil Co.'s No. 2 Shaffer, SE cor. NE Section 1-21-14, Stony Butte structure, is drilling at 200 feet. This well is one-fourth mile southeast of the Midwest's well drilled last year which had some production in the Mesa Verde at around 850 feet. The Kutz Canon Oil & Gas Co.'s No. 1 Day, SW cor. Section 20-28-10, is underreaming to lower the 10-inch to 687 feet.

UTAH

While the Continental Oil Co.'s test in Section 22-43-22, on the Boundary Butte Dome in San Juan County, southeastern Utah, is believed to be less than 50 feet off the objective sand, progress in reaching the horizon is very slow due to the heavy gas pressure and the small size of the hole. It is drilling at 5,090 feet and is making between 10,000,000 and 15,000,000 feet of gas. Some small shows of oil have been encountered at around the present depth. If the formations continue to correlate with the Boundary Butte well it is possible some water may be encountered just above the pay, which will further delay completion.

The Boulder Knoll Oil & Gas Co.'s No. 1 Endter, NW NW Section 17-34-25, San Juan County, is preparing to resume. Last July this well ran into a flow of 5,000,000 feet of gas at the top of the Shinarump conglomerate at 2,640 feet. There was 325 feet of open hole. A liner was run to the bottom and after cleaning out a show of oil was encountered followed by salt water which rose 900 feet. It continued to make gas through the water, but no work has been done since then until the past week, when it was opened and swabbed. An increase in the gas was reported. Equipment is now being moved in to underream and lower the 6¼-inch to shut off the water, after which it will be drilled deeper.

In Grand County, the Utah Southern Oil Co.'s No. 1-A J. L. Shaffer, Section 36-26-20, Cane Creek Dome, cemented the 6¼-inch at 3,096 feet to shut off water, and its No. 1 King, Section 13-23-20, Salt Valley Dome, is waiting for 6¼-inch to run to shut off heaving shale. The Crescent Oil Syndicate's No. 1 McCarthy, Section 27-21-19, Crescent area, is running 8¼-inch and will cement it at 1,625 feet. The Navajo Petroleum Co.'s No. 1 State, SW SE Section 2-20-21, in the Cisco district, which had a show of oil at 2,811 feet, encountered quite a flow of gas at 2,900 feet, followed by salt water at 2,968 feet. The water will be cased off and drilling to the Salt Wash continued.

COLORADO

Colorado had one failure and one completion this week, the failure being the Continental Oil Co.'s No. 1-A Shaw, SE NW NW Section 3-22-63, in the Vineland district southeast of Pueblo. This well found water in the Dakota sand and is being abandoned at a total depth of 1,310 feet. It is only 30 feet south of No. 1 Shaw, drilled by the Rozella Oil Co., which last January was reported having 700 to 800 feet of oil in the hole. The "discovery" caused a considerable boom, and at its height as many as 20 operations were under way, including locations and rigs up to drilling wells. Though the discovery was bailed a number of times it was never completed and tested, and was abandoned after the parted casing was mushroomed at the top and lathe filings were found in the hole. The Continental went in and drilled the offset for the purpose of definitely establishing whether there was any oil in the vicinity, most of the other wells drilled finding nothing but water. While there is some talk of other wells being drilled, the results in the Continental test are accepted generally as discrediting the field.

The other completion was the Texas Production Co.'s No. 5 Walter Wick, NW Section 10-4n-91, on the Moffat Dome, already reported a producer. It was completed at 4,851 feet in the Sundance and swabbed 689 bbls. initial. The 4½-inch was cemented on top of the sand at 4,837 feet. The results in this well and the same company's No. 11 Knowlton, SE cor. Section 33-5n-91, reported last week, gives new life to the Moffat Pool as both wells are in the Sundance, below the Dakota, which has been the producing horizon heretofore. There are several wells in the Dakota on the Wick lease which undoubtedly will be producers if drilled deeper, and the indications are the Sundance covers a much larger area than was productive in the Dakota.

Iles Dome

On the Iles Dome, southwest of the Moffat Dome, the Midwest Refining Co.'s No. 24-8D Parkinson, NE SE NW Section 22-4n-92, is bottomed at 3,506 feet, presumably in the Sundance, and is preparing to swab for a test. It has 1,600 feet of oil in the hole. The Texas Production Co.'s No. 36 Lloyd, SE cor. Section 21-4-92, on the southwestern flank, is drilling at 3,792 feet and the prospects are not very encouraging. Thomas McLaughlin and others' No. 1 Williams, SW NW SW Section 2-3n-92, which is testing the fault block south of the Iles Dome, is bottomed at 3,490 feet in black shale and underreaming the 8¼-inch. It is now believed the sand cut at 3,248-55 feet was the Frontier and the hole is getting close to the Dakota. This well is running approximately 186 feet higher than No. 1 Taylor, NW NE NE Section 34-4-92, drilled by the Marland Oil Co. in 1927 to test the fault block. The Taylor well appears now to have been too near the fault and to have drilled through it. It stopped at 3,715 feet without reaching the Sundance, which two weeks later was proven productive north of the fault by the Midwest Refining Co. The hole had been plugged and could not be carried down after the discovery was made in the other well. The Taylor well had several million feet of gas in the Frontier at 3,172-3,225 feet. While the Frontier evidently was south of the fault, the test in the Sundance, if it had been drilled to that horizon, would have been on the north of the break. Thus the Williams well is considered the first test in the fault block.

Hiawatha Dome

The Texas Production Co.'s No. 1 Berlin, SW SW NE Section 19-12-100, Bartram Dome, is building rig, and the Mountain Fuel Supply Co.'s No. 1 State-Reiter-Foster, SE cor. Section 16-12-100, on the Hiawatha Dome, is waiting for liner at 3,585 feet. This well is below all horizons heretofore tested on the Hiawatha Dome and has had several good shows of gas and oil. It has been reduced to 4¾-inch and a rotary recently was installed to go as deep as possible before giving up.

In Jefferson County near Denver, the Ruby Hill Oil & Gas Co.'s No. 1 Braden, SE cor. Section 24-4s-69, is bottomed at 2,150 feet and underreaming the 8¼-inch. It continues to make a strong show of gas in what is believed to be the Foxhills.

In Mesa County, the High Line Oil Syndicate's No. 1 Peerless, NE cor. Section 23-8s-104, cut a sand at 2,690-2,705 feet, believed to be above the Dakota, which contained shows of both oil and gas. The 8¼-inch, which is at 2,000 feet, will be underreamed and lowered before any new hole is made.

WYOMING

The Frannie structure in northern Park County continued to attract interest in Wyoming due to another well reaching the Embar lime. Last week the Midwest Refining Co.'s No. 1 Kirk, SE cor. Section 23-58-98, reached the pay at 2,805 feet and the oil rose 1,500 feet in the hole. The 8¼-inch was cemented at that depth and the well will be drilled in and completed as soon as tanage is erected. The Kirk well, which is on acreage held by the Summitt Oil Co. and was drilled by the Midwest under a contract, is one-fourth mile to the northwest of the discovery. It is approximately 220 feet lower stratigraphically than the first oiler on the dome. The Midwest's No. 36 Rosenberg, SE cor. NW Section 25-58-98, one-fourth mile to the southeast of the discovery, topped the Embar lime this week at approximately 2,460 feet. The interesting feature of this well is that it started 200 feet lower stratigraphically than the discovery, but topped the lime 100 feet higher, probably due to faulting. There are two faults cutting across the structure, one known as the north and the other as the south faults. The discovery and the Kirk wells are both north of the north fault and on the upthrow side.

No. 36 Rosenberg was expected to test the block between the two faults and was spotted just north of the south fault. C. T. Lupton, who originally mapped the structure, expresses the opinion that No. 36 Rosenberg drilled through the south fault and topped the lime on the south, or upthrow side, and this accounts for the higher elevation at which the lime was topped. The fracture appears to be a normal sloping fault which easily makes this possible. No. 36 Rosenberg topped the First Wall Creek sand at 102 feet, this horizon being 100 feet thick, while the discovery well one-fourth mile to the northwest started below the Wall Creek. If it has drilled through the fault and found the lime south of the break, it means that the zone between the two faults remains to be tested. If No. 36 proves to be a producer, as now seems probable, there is every reason to believe the fault zone will be productive, since the formations are considerably fractured, and the Frannie operation is of increasing importance. The Summitt Oil Co. controls approximately half of the best acreage on the structure, the other being held by the Midwest Refining Co., the E. H. Rosenberg interests, Ralph Arnold, and others. About 3 miles southeast of this operation the Producers & Refiners Corp.'s No. 1, SE NW Section 7-57-97, on the Sage Creek high, is drilling again after being idle during the cold weather. It is bottomed at 2,025 feet in sandy gray shale and is approaching an interesting depth. The same company is spudding at 45 feet in its second well on Section 7 in the NW NE SE of the second. In Oregon Basin, the Producers & Refiners' No. 1 Owen, Section 29-52-100, is straightening a crooked hole at 560 feet.

Weston County

The Wyoming Drilling Syndicate's No. 1, NE cor. Section 15-44-64, on the Howard Dome in Weston County, in the northeastern part of the state, is due for close attention on account of the showing of 2,000 feet of light oil at a total depth of 4,350 feet, reported last week, when operations were resumed following the winter. This oil is believed to be coming from either the first or second Wall Creek sands, as the hole was bottomed in the break between them when operations were suspended for the winter. A rotary rig has been erected to sidetrack 600 feet of collapsed casing at the bottom and until the hole is cleared it will not be possible to form any definite opinion concerning the value of the strike. However, it holds considerable promise as the structure covers approximately 12,000 acres, most all of which is patented land.

One completion was reported in Natrona County, the Fargo Western Oil Co.'s No. 8, Section 3-33-83, on the Poison Spider structure southwest of Casper, estimated good for 150 bbls. from a total depth of 2,480 feet. It was an old well deepened to the Tensleep. The Prairie Oil & Gas Co. is starting a new test in this county in its No. 1, NE cor. SW Section 22-31-81, on the Clark structure, 20 miles southwest of Casper. Material is being moved to location.

In Sublet County, the California Petroleum Co.'s No. 3-B-2, Section 27-27-113, LaBarge Field, is dry and abandoned at 1,349 feet. This company is starting two new wells after the winter shutdown. The California Co.'s No. 1 Wyss, NE SW Section 12-32-115, is bottomed at 1,740 feet and underreaming.

Sweetwater County

In Sweetwater County, the Mountain Fuel Supply Co.'s No. 1 Newberry, SE cor. Section 13-12-100, Hiawatha Dome, is resuming and fishing for underreamer at 1,300 feet. This well has been shut down since last fall and is owned jointly with the Somir Petroleum Co., which drilled it to the present depth. Same company's No. 1 Arnold, NE Section 24-19-104, Middle Baxter Basin, is drilling at 2,475 feet, and its No. 1 Humphreys, SW NE Section 2-12-101, Canon Creek, is fishing for tools at 3,550 feet. This company is starting another well on the South Baxter Basin Dome in its No. 1 Murphy, Section 26-17-104, for which rig is up, and its No. 1 Hay, Section 26-17-104, is skidding rig to start new hole. Old hole was bottomed at 225 feet. The Producers & Refiners' No. 1, NE SE Section 26-20-104, North Baxter Basin, joint with the Marland Oil Co., cemented the 6¼-inch at 3,522 feet. The gas has been killed and plans are to go on down to the Sundance.

MONTANA

On the west side of the Pondera Field, the Kevin Corp.'s No. 2 on a State lease, Section 16-27-4, came in as a producer good for 175 bbls. at a depth of 2,011 feet. This indicates the new producer has opened up a local high on the west side and the well is logging higher than several near-by holes. The Midwest Refining Co. has a good well on the same section making 167 bbls. initial and one on the southeast quarter that is a dry hole.

The Fulton Syndicate's No. 5 on the State lease also reached the sand and is good for 100 bbls. This well is also on Section 16-27-4, and found the sand 2,028 feet. The Ohio Oil Co., drilling No. 6 on the Hirschberg lease, looks good for 50 bbls., and the Texas Pacific's No. 11 Hirschberg will make a small pumper, about 15 bbls.

The Sunburst Field had four new producers. The Cosmos Petroleum Co. found a 50-bbl. well on the Zachor lease, Section 20-35-1, for its second well. The Hibbings-Sunburst joint well on section 12-35-2, is the best of the year, and looks good for 200 bbls. The California Co. has

a 10-bbl. pumper on Section 22-35-2, and the P. M. K. Oil Co. has a well on Section 19-35-1, that will make around 30 bbls. naturally.

Bannatyne and Lake Basin

Bannatyne and Lake Basin Fields are looking forward to active campaigns this season. Five strings of tools are active in Bannatyne and at Lake Basin two wells are expected to start on the Lake Basin structure and the Carter Oil Co. is expected to start a wildcat on the Six Shooter structure near the Lake Basin. The well being drilled on the Lost Creek Dome has cleared the hole of iron and will start drilling again soon. This last well is at 2,370 feet and has gas enough to operate the well from a sand at 2,310 feet.

The Signal Hill Oil Syndicate, drilling a wildcat near Lewistown, Mont., had a showing of oil that caused much excitement for a time. The showing is not commercial and the well is drilling again, but if no more oil is found, the syndicate declares its intention to plug back and shoot. The showing was found at 1,400 feet and the hole is now around 1,600 feet.

The U. S. Petroleum Co.'s No. 1 near Great Falls that had a showing of oil at 1,150 feet is waiting on a string of small casing to make a test. The hole is standing nearly full of oil and when the cave is shut off with a string of 4-inch pipe, will be given a test on the pump.

The Ohio Oil Co. has started a second well on the Dry Creek Dome in southern Montana, Carbon County. The first well here is a commercial gasser and the second is spudding at 140 feet.

ROCKY MOUNTAIN FIELDS

Daily Average Pipe Line Runs Week Ending May 18

WYOMING	
Salt Creek	30,010
Frannie	30
Big Muddy	2,390
Oregon Basin	2,810
Byron	30
Dutton	...
Elk Basin	810
Ferris	20
Grass Creek	2,310
Greybull	...
Hamilton	1,000
LaBarge	1,820
Lance Creek	280
Lost Soldier	3,320
Osage	730
Poison Spider	940
Rock River	2,480
Rex Lake	140
Lander	700
Simpson Ridge	50
Teapot Dome	60
Total	49,930
MONTANA	
Cat Creek	1,420
Kevin-Sunburst	6,490
Fondera	3,050
Lake Basin	80
Total	11,040
COLORADO	
Moffat	1,439
Fort Collins	2,443
Florence	925
Iles	1,925
Tow Creek	572
Boulder	25
Rangely	100
Total	7,429
NEW MEXICO	
Artesia	921
Cap Rock (Maljamar)	403
Hogback	380
Rattlesnake	768
Table Mesa	...
Total	2,472
Grand total	70,871

PANHANDLE FIELDS

(Continued from Page 47)

depth of 3,079 feet and had an initial production of 8,000,000 feet of gas.

WICHITA DISTRICT COMPLETIONS

Week ending May 18

Archer County

Brown Farm Oil Co.'s No. 3 Brown was dry and abandoned at 1,649 feet. Brown and United Production Co.'s No. 1 Taylor was drilled to a total depth of 1,480 feet, topped the pay at 1,478-80 feet, and had an initial production of 182 bbls. oil and 15 bbls. water the first 24 hours. Empire Gas & Fuel Co.'s No. 1 Sterrett was dry and abandoned at 1,800 feet. Gohlke's No. 4 Wilson had an initial production of 30 bbls. at 1,567-71½ feet. McCarty Oil Co.'s No. 1 Gibbs Wilson was dry and abandoned at 1,862 feet. Pace's No. 1 Henry Ford had an initial production of 2 bbls. at 620-22 feet. Pandem Oil Corp.'s No. 5 Wallace was dry and abandoned at 1,797 feet. Atlantic Oil Production Co. and Venmex Co.'s No. 1 Andrews was dry and abandoned at 1,000 feet after having an oil show at 901-05 feet. Continental Oil Co.'s No. 1 Richardson had an initial production of 52 bbls. at 1,161-70 feet. Franklin's No. 1-A Andrews was dry and abandoned at 891 feet. Gilliland's No. 10 Neimeyer was drilled to a total depth of 1,439 feet, topped the pay at 1,426-39 feet and had an initial production of 18 bbls. Humble Oil & Refining Co.'s No. 3 Hamilton was dry and abandoned at 1,254 feet. Madden's No. 17 Richardson was drilled to a total depth of 1,295 feet and had an initial production of 40 bbls. Moran Drilling Co. and Independent Oil & Gas Co.'s No. 2 Scott had an initial production of 52 bbls. at 1,195-99 feet. Panhandle Refining Co.'s No. 1 Roter was dry and abandoned at 800 feet. Petroleum Producers Co. and Humble Oil & Refining Co.'s No. 1 Falls Co. fee was dry and abandoned at 1,312 feet. Petroleum Producers and others' No. 2 Kumkel had an initial production of 60 bbls. at 1,186 feet.

Clay County

American Refining Properties' No. 2 fee had an initial production of 12 bbls. at 896-99 feet.

Cooke County

Kewanee Oil & Gas Co.'s No. 4 Timmie had an initial production of 105 bbls. at 1,516 feet. Shell Petroleum Corp.'s No. 1 Dennis had an initial production of 64 bbls. at 1,436-43½ feet.

Grayson County

Murchison Oil Co.'s No. 1 Wall had an initial production of 6,200,000 feet of gas at 893 feet. Simpson-Fell Oil Co.'s No. 1 Guilloud had an initial production of 11,200,000 feet of gas at 887-900 feet.

Jack County

Panhandle Refining Co.'s No. 1 Daugherty-Morrissey was drilled to a total depth of 3,110 feet and had an initial production of 600 bbls. daily.

Young County

Robertson Drilling Co.'s No. 4 Gillmore had an initial production of 8 bbls. at 576-592 feet. L. G. Bradstreet's No. 1 Richardson made 80 bbls. at 688-94 feet. Continental Oil Co.'s No. 8 Campbell was dry and abandoned at 925 feet. Pennell's No. 1 Cox was dry and abandoned at 817 feet. Riggs and others' No. 27 McKinley was dry and abandoned at 623 feet. Their No. 28 McKinley made 8 bbls. at 578-601 feet.

Wilbarger County

Burton's No. 2 Waggoner made 85 bbls. at 2,391-2,402 feet. Empire Gas & Fuel Co.'s No. 4 Waggoner made 100 bbls. at 1,839-54 feet. Its No. 8 Waggoner made 155 bbls. at 1,829-39 feet. Grisham's No. 1 Waggoner was dry and abandoned at 2,365 feet. Klop's No. 6 Waggoner had an initial production of 95 bbls. at 2,421-49 feet. McMan Oil & Gas Co.'s No. 1 Waggoner was dry and abandoned at 2,880 feet. Melat Oil Co.'s No. 2 Waggoner made 80 bbls. at 1,978-87 feet. Prairie Oil & Gas Co.'s No. 8 Waggoner had an initial production of 40 bbls. at 2,300-13 feet. Staley Wynne & Co.'s No. 6 Waggoner made 175 bbls. at 2,404-12 feet. Waggoner Refining Co.'s No. 3 Waggoner made 214 bbls. at 2,268-71 feet and 2,278-81 feet.

Wichita County

Barclay & Faith's No. 1 Kemp & Kempner had an initial production of 11 bbls. at 1,021-31 feet and was drilled to a total depth of 1,054 feet. Bowen's No. 1 Fassett was dry and abandoned at 1,438 feet. Hammon's No. 8 Mitchell made 80 bbls. at 1,307-30 feet and was drilled to a total depth of 1,332 feet. King Ray Co.'s No. 3 Boyd made 130 bbls. at 1,774-85 feet. Stump & Heydrick's No. 2 Ferguson had an initial production of 60 bbls. at 1,780-90½ feet.

RANGER COMPLETIONS

Week ending May 18

Brown County

Zwiegel's No. 1 Armstrong was dry and abandoned at 1,461 feet. Humble Oil & Refining Co.'s No. 1 Tervooren was dry and abandoned at 1,515 feet. Simon, Jones & Longre's No. 1 Fitzgerald location was abandoned. American Maracaibo Co.'s No. 1 Cross was drilled to a total depth of 1,152 feet, had an oil show at 1,130-50 feet, plugged back to 1,150 feet and had an initial production of 180 bbls. Brider Trustee's No. 2 Cross was dry and abandoned at 1,675 feet. Campbell and others' No. 1 Turner was dry and abandoned at 800 feet. Cranfill & Reynolds' No. 2 Marr-A was dry and abandoned at 1,345 feet. Humble Oil & Refining Co.'s No. 12 Byler was dry and abandoned at 1,340 feet.

Callahan County

Humble Oil & Refining Co.'s No. 2 Head Brothers-A was dry and abandoned at 2,175 feet.

Coleman County

Hill's No. 1 Cochran was dry and abandoned at 2,508 feet. Barnsdall Oil Co.'s No. 1 Keely & Stockart was dry and abandoned at 1,453 feet. Reynolds and Unruh's No. 2 Gill ranch was dry and abandoned at 1,685 feet.

Comanche County

Texas Pacific Coal & Oil Co.'s No. 2 Kirk was drilled to a total depth of 2,735 feet, shot with 100 quarts at 2,690-2,722 feet and had an initial production of 28 bbls.

Erath County

Culberson Brothers and others' No. 1 Fullbright was dry and abandoned at 3,505 feet. House and others' No. 1 Gage was drilled to a total depth of 3,730 feet, plugged back to 3,192 feet, found sand at 3,164-80 feet and had an initial production of 750,000 feet of gas. Texas Pacific Coal & Oil Co.'s No. 1 Smith was shot with 12 quarts at 3,323-35 feet and had an initial production of 2,800,000 feet of gas.

Eastland County

Texas Pacific Coal & Oil Co.'s No. 2 Davenport was deepened from 3,438 feet to 3,730 feet and had an initial production of 900 bbls. from 3,420-38 feet. This well was plugged back to 3,440 feet and completed as a 10-bbl. well.

FIRE HAZARD CAUSED BY SULPHUR OILS

(Continued from Page 41)

ress. It was thought that some of these fires were caused by lightning striking the tank. Other fires of large storage tanks have started when atmospheric conditions were calm. As there was no trace of open fire around the tanks at the time it has led many to believe that the fire was caused by spontaneous oxidation.

So far as can be learned every operator in the sulphur crude producing fields has had experience in a measure with this type of fire. Fortunately each fire on the lease has been extinguished before any serious damage was done to either life or property. However, the hazard remains that a serious fire can break out and do great damage before being brought under control.

Remedies Discussed

Engineers urge that every precaution be taken to avoid the hazard. They agree that the combination of elements in dangerous form will not occur when the sulphur is prevented from coming in contact with the metal. To answer this question would virtually bring an end to corrosion problems, which are probably at their worst in West Texas.

So far as tanks are concerned several manufacturers are offering paints as a method of sealing the metal away from the sulphur oil and gas thereby preventing it from coming in contact with metal for which it has an affinity. Some painting processes are too costly to make the operation economical. Some companies, however, now claim to have a paint and method of application that will form a perfect seal and protect the metal against the attacks of corrosion for a period of several years making the operation an economical one. Some of the prime requisites for these paints are that they be adhesive, elastic and sulphur resisting.

In cleaning tanks several precautions can be taken in addition to those usually taken. All scale taken from a tank should be removed a safe distance as the accumulation has been known to start burning several days after its removal from the tank. If it is practicable engineers recommend that water be sprayed on the accumulation before its removal to neutralize the action of the accumulation when it comes in contact with fresh air.

When tubing is being handled or other small pieces of equipment are being cleaned the presence of fire fighting equipment available for instant use will lessen the danger. When pipe or traps are being cleaned the action of the scale and fresh air can be neutralized by flushing with water. But because of the scarcity of water in West Texas this method is not always practicable.

OIL EXPORTS AND WORLD PRODUCTION

(Continued from Page 40)

KEROSENE EXPORTS

(Barrels 42 U. S. gallons)

To—	1927	1928
Belgium	538,588	296,373
Denmark	517,990	526,492
France	1,127,435	1,669,660
Germany	832,922	828,610
Italy	258,492	160,039
Netherlands	1,757,326	1,599,226
Norway	269,935	262,775
Portugal	315,948	356,192
Spain	77,623	101,824
Sweden	284,978	460,700
United Kingdom	3,172,465	2,944,532
Other Europe	353,794	380,398
Canada	128,003	160,058
Central America	78,412	45,142
West Indies, Bermudas	159,191	178,769
Argentina	336,200	189,773
Brazil	696,843	649,969
Uruguay	225,410	180,732
British India	1,369,741	474,827
British Malaya	153,404	12,391
China, Hongkong	2,618,322	4,769,165
Dutch East Indies	186,763	174,162
French Indo-China	54,683	75,763
Japan	1,608,997	2,371,610
Philippine Islands	197,460	360,405
Australia	599,604	998,344
New Zealand	114,793	176,866
British Africa	608,364	669,191
French Africa	320,211	283,884
Portuguese Africa	70,923	101,283
Other countries	326,282	393,469
Total	19,352,102	21,852,623
In bulk	13,832,317	16,290,641
In containers	5,519,785	5,561,985

GAS AND FUEL OIL EXPORTS

(Barrels 42 U. S. gallons)

To—	1927	1928
Belgium	534,410	423,935
Denmark	717,649	597,528
France	92,553	578,477
Germany	1,257,971	1,793,140
Italy	182,308	402,800
Netherlands	769,652	884,301
Norway	100,004	196,747
Spain	68,511	153,242
Sweden	236,970	146,894
United Kingdom	5,507,282	4,402,741
Canada	2,377,177	2,371,832
Panama	7,360,016	5,188,569
Mexico	1,042,748	1,218,770
Cuba	1,942,493	2,035,707
Other West Indies and Bermudas	544,549	604,037
Argentina	4,307,750	2,113,870
Brazil	1,232,879	887,428
Chile	4,349,940	6,328,693
Other South America	1,597,642	980,583
China, Hongkong	1,159,120	1,131,086
Japan	4,419,106	5,114,192
Philippine Islands	685,995	592,431
New Zealand	918,587	948,385
French Africa	71,996	79,044
Other countries	1,479,875	2,474,034
Total	42,063,180	41,558,367
Fuel or bunker oil for vessels in foreign trade, not included in above:		
On American vessels	22,205,735	23,263,915
On foreign vessels	27,844,839	27,860,905
Total	50,050,574	51,124,820

PETROLEUM EXPORTS

(Barrels 42 U. S. gallons)

Crude oil:	1927	1928
Europe	416,721	556,421
Canada	13,036,216	15,431,230
Cuba	526,819	527,956
Japan	1,633,389	2,066,139
Other countries	230,260	379,616
Total	15,843,405	18,961,362
Lubricating oil:		
Red and pale	5,984,138	6,939,071
Black	671,776	1,029,270
Cylinder	2,949,843	2,881,200
Total	9,605,757	10,849,541
Turpentine substitute	2,648,274	*2,352,727
Transformer oils	2,844,976	*4,232,854
Light oils, small pkgs.	540,360	*544,925
Lubricating greases	100,483,272	†108,111,834
Paraffin wax	340,422,834	†392,648,443
Petroleum asphalt	343,778	2442,129
Petroleum coke	93,253	2128,688
Petroleum residuum	217,229	62,596

*Gallons. †Pounds. ‡Tons.

ROAD LAWS DECLARED TO BE ANTIQUATED

(Continued from Page 41)

as saying that the 6-wheel truck, with a limitation of wheel concentration and pneumatic tires, and not limitation of gross load, is the solution of the problem of conserving existing highways and affording economic transportation.

Co-operative highway transport surveys carried on by the Bureau of Public Roads and various state highway departments were said to have shown that for general use the 5-ton 4-wheel truck is today the maximum size required. Its wheel concentrations are within the safe load limit for the modern standard types of rural pavements. But there is a large mileage that is not safe for roads beyond this, and it is to protect this large mileage and at the same time permit operation of large capacity trucks wherever desired that the road chief had suggested the 6-wheel vehicle.

The Petroleum Motor Transport Association is composed of men in charge of the motor transport divisions of oil companies in Oklahoma. Its membership represents 28 major companies, all of which are said to favor road legislation more nearly in keeping with the needs of the petroleum industry and with improvements made in truck manufacture. The proposition to authorize a big bond issue for highway improvements makes revision of the state's road laws vitally important, it was pointed out at Friday's meeting, both because the oil industry pays enormous taxes and because it is facing serious problems in road transportation.

NEW JERSEY REPORT STRESSES CONSERVATION

(Continued from Page 179)

products are bringing prices that represent their real values, notwithstanding that in the first four months of this year there was an increase in consumption of 13 per cent, including both domestic and export demand. However, as a whole, there is evidence that the industry in the United States is getting on a better basis, a more stabilized basis, and it would seem that, if for nothing else than sheer necessity, this condition will improve from year to year."

P. D. C. Ball of St. Louis, P. W. Thirtle, comptroller of the company, and George MacDonald of New York, were elected to the board succeeding H. P. Whitney and E. H. Clark, resigned, and W. H. Isom, deceased.

Pure Oil

Report of Pure Oil Co. and subsidiaries for year ended March 31, 1929, shows net income of $11,224,081 after interest, Federal taxes, depreciation, depletion, subsidiary preferred dividends, etc., equivalent after preferred dividends, to $3.05 a share (par $25) earned on 3,038,370 shares of common stock. This compares with $4,710,585 on 97 cents a share in previous year.

V.O.C. Holding

V.O.C. Holding Co., Ltd., declared a dividend of 22½ per cent on the common and preference stocks, less tax, for year ended December 31, 1928, against 20 per cent in preceding year.

Tide Water Associated

Tide Water Associated Oil first quarter 1929 net income was $1,613,671 after charges and taxes, against $2,071,473 in 1928 period. Tide Water Oil net income was $861,299, against $742,775. Associated Oil net income, $1,082,802, against $1,717,149.

New Jersey Extra

Standard Oil Co. of New Jersey today declared an extra dividend of 25 cents a share on the common stock and the regular quarterly payment of 25 cents. Previously an extra dividend of 12½ cents had been paid. The dividends are payable June 15 to stock of record May 25.

Mid-Continent Petroleum

Report of Mid-Continent Petroleum Corp. for quarter ended March 31, 1929, shows profit of $2,120,991 after abandoned and surrendered leaseholds, interest, etc., but before depreciation, depletion and federal taxes, comparing with profit of $1,032,390 in first quarter of 1928. Outstanding amounts to 1,857,912 no par shares.

WEST TEXAS FIELDS

(Continued from Page 48)

feet. Moody Corp.'s No. 13-B Roberts, located 380 feet from north and 2,310 feet from west of Section 137, Block 29, had an initial production of 300 bbls. at 2,616-2,675 feet.

Irion County

Irion Drilling Co.'s No. 2 Tankersley, located 300 feet SE of Moore & Kennedy's No. 1 in Section 23, was dry and abandoned at a total depth of 1,398 feet.

Pecos County

Weekley and others' No. 1 Byrne, located 990 feet from NW and SW of Section 24, Block 10, H.&G.N.R.R. Survey, was dry and abandoned at 1,600 feet.

Winkler County

Bashara and others' No. 1 Bashara, located 2,310 feet from west and 990 feet from south of Section 17, Block B-3, was drilled to a total depth of 2,481 feet, found gas at 2,480 feet, blew tools out of hole at 2,481 feet, rig burned. It made 18,500,000 feet of gas and was temporarily completed as a gasser. Humble Oil & Refining Co.'s No. 11 Hendricks-C, located 1,980 feet from north and 1,320 feet from west of Section 10, Block B-12, topped the lime at 2,481 feet, was drilled to a total depth of 2,919 feet, topped the pay at 2,850 feet and had an initial production of 539 bbls. hourly. Southern Crude Oil Purchasing Co.'s No. 9 Hendricks T-88-U, located 2,200 feet from south and 1,650 feet from east of Section 41, Block 26, had an initial production of 60 bbls. hourly at 2,695-2,885 feet. Its No. 6 Hendricks T-89-J, located 2,200 feet from south and 330 feet from east of Section 9, Block B-12, topped the lime at 2,510 feet, topped the pay at 2,735 feet, was drilled to a total depth of 2,887 feet and had an initial production of 77 bbls. hourly, 66 per cent water.

Loving County

Lockhart & Co.'s No. 2 Hubbard, located 1,660 feet from NE and 330 feet from SE of Section 83, Block 33, was shot with 120 quarts at 4,191-4,221 feet and had an initial production of 10 bbls. hourly.

PECOS COUNTY

Yates Pool, Week Ending May 7

Company, lease—	Wells	Prod.
California Co.:		
Yates—lease 1	17	6,723
Smith—lease 1, Sec. 27	3	419
Company, farm—	Wells	Prod.
Smith—lease 1, Sec. 23	7	1,404
Smith—lease 1, Sec. 21	3	898
Smith—lease 3	2	160
Smith—lease 3	12	1,731
Tippett—lease 1	1	37
Cosby Drilling Co.:		
Smith	1	250
Gulf Prod. Co.:		
All leases	36	11,028
Humble O. & R. Co.:		
Smith-A	10	1,422
Smith-B	5	772
Kirby Pet. Co.:		
Tippett	2	50
Kirby Pet. & Edson:		
Tippett	1	200
Marland Oil Co.:		
Yates-A	8	494
Yates-A-S	7	1,734
Matador Oil Co.:		
Smith	2	585
Mazda & Savoy:		
Smith	3	669
McCarty Oil Co.:		
Gray	1	5
McMan Oil & Gas Co.:		
Smith-A	1	1,135
Smith-B	4	962
Smith-C	5	757
Tippett	2	159
Richardson	1	57
McMan & Marland:		
Yates	17	4,514
Mid-Kansas & Transcontinental:		
Yates-A	24	13,095
Yates-B	27	5,412
Yates-C	11	5,703
Yates-D	6	6,124
Yates-E	1	94
Yates-F	4	654
Yates-G	4	987
Yates-H	8	5,288
Smith	4	1,283
Smith	18	2,486
Yates-C-3	1	102
Grayburg Oil Co.:		
Pecos River Bed	7	750
Seepage		1,760
Pecos Valley Oil Co.:		
Sec. 22, Block 26	2	73
Phillips Pet. Co.:		
Monroe	1	64
Ramsey	1	199
Red Bank Oil Co.:		
Smith	5	573
Shell Pet. Co.:		
Tippett	11	2,053
Smith	9	907
Smith-B	1	655
Smith-D	3	443
Smith-E	1	20
Simms Oil Co.:		
Smith	7	4,963
Skelly Oil Co.:		
Tippett	1	90
Total Yates Pool	308	89,943

Plat showing Pecos Valley area, Pecos County. This area was brought into the field of discovery last November, when the Pecos Valley Oil Co.'s No. 1 fee made the discovery of a shallow pool. Many tests have been drilled, and are drilling to date, in the immediate vicinity, with one gas well gauging 18,000,000 feet of gas, and three small producers being marked on map. The abandoned small producers in the old Trans-Pecos Pool can be noted to the south of the Pecos Valley area.

DAILY AVERAGE PRODUCTION BY LEASES

WINKLER COUNTY

Hendricks Pool, Week Ending May 14

Company, farm—	Sec. Blk.	Wells	Prod.
Amerada Pet. Corp.:			
Cowden, 3, B-12		2	817
Atlantic O. P. Co.:			
Hendricks-A, 34, B-5		8	1,370
Hendricks-B, 44, 26		4	742
Hendricks-D, 29, B-5		8	2,167
Hendricks-E, 41, B-5		7	2,296
Hendricks-G, 46, 26		7	701
Hendricks-H, 30, B-5		1	15
Atlantic & Collett:			
Hendricks-F, 40, 26		13	1,530
Bankers Prod. Co.:			
Hendricks, 30, B-5		1	50
California Co.:			
Hendricks, 29, B-5		8	972
Cranfill & Reynolds:			
Hendricks-A, 28, B-5		2	175
Hendricks-B, 35, B-5		1	85
Hendricks-C, 33, 26		7	152
Hendricks-E, 33, 26		2	427
Cranfill & Texon:			
Hutchings, 47, 26		1	90
Culberson Brothers:			
Hendricks, 40, B-5		1	77
Eastland Oil Co.:			
Hendricks, 35, B-5		2	443
Hendricks-B, 35, B-5		1	196
Gulf Prod. Co.:			
Hendricks-A, 34, B-5		13	3,984
Hendricks-B, 45, 26		11	7,846
Hendricks-C, 40, B-5		6	2,064
Hendricks, 44, 26		2	685
Cowden, 3, B-12		3	1,838
Humble Oil & Ref. Co.:			
Hendricks-A, 34, B-5		17	4,780
Hendricks-B, 29, B-5		6	1,088
Hendricks-C, 32, 26		3	712
Hendricks-B, 47, 26		7	805
Hendricks-C, 10, B-12		8	4,605
Independent Oil & Gas:			
Hendricks-A, 34, B-5		3	1,124
Howe-B, 44, 26		3	429
McCabe, 36, B-5		2	275
Hendricks, 42, B-5		1	11
Vardeman-B, 41, B-5		7	771
Magnolia Pet. Co.:			
Hendricks, 29, B-5		3	681
Marland Oil Co.:			
Hendricks, 33, 26		4	889
Hendricks, 29, 26		2	174
Hendricks-B, 34, 26		2	203
May Prod. Co.:			
Hendricks, 34, 26		1	82
American Maracaibo:			
Hendricks-A, 28, B-5		1	50
Hendricks-B, 28, B-5		1	155
Mining & Engineering:			
Hendricks, 10, B-23		1	0
Murchison & Cranfill:			
Hendricks-A, 35, B-5		3	756
Hendricks-B, 35, B-5		3	404
Hendricks-C, 35, B-5		1	6

Company, farm—	Wells	Prod.
Hendricks-H, 25, 26	1	1,394
Hendricks-I, 47, 26	2	602
Prairie Oil & Gas Co.:		
Hendricks, 40, 26	6	1,274
Cowden, 3, B-12	6	3,716
Pure Oil Co.:		
Hendricks, 41, B-5	11	1,809
Hendricks-B, 34, B-5	13	4,037
Hendricks-C, 45, 26	14	8,367
Hendricks-D, 44, 26	1	219
Republic Prod. Co.:		
Hendricks-A, 45, 26	13	1,711
Hendricks-B, 41, B-5	5	258
Shell Pet. Co.:		
Hendricks-A, 45, 26	6	1,388
Hendricks-B, 29, B-5	6	941
Hendricks-C, 29, B-5	8	1,177
Hendricks-D, 41, B-5	6	423
Hendricks-E, 49, B-5	3	755
Hendricks-F, 46, 26	8	1,361
Hendricks-G, 39, 26	1	4
Shell-Texas Co.:		
Cowden-A, 3, B-12	6	1,273
Hendricks, 45, 26	6	1,434
Hendricks-A, 29, B-5	11	2,805
Hendricks-B, 40, 26	6	728
Hendricks-C, 40, 26	6	1,782
Hendricks-D, 40, 26	6	558
Hendricks-E, 39, 26	4	481
Skelly Oil Co.:		
Hendricks, 40, 26	12	6,099
Hendricks-B, 39, 26	2	35
Hendricks-C, 39, 26	1	497
Southern Crude Oil Purch. Co.:		
T-67 Hendricks-A, 42, B-5	3	164
T-67 Hendricks-3-A, 4, B-12	5	443
T-67 Hendricks-B, 44, 26	5	647
T-67 Hendricks-3-B, 32, 26	5	456
T-67 Hendricks-C, 33, B-5	5	755
T-67 Hendricks-2-D, 28, 26	4	792
T-67 Hendricks-E, 42, B-5	4	138
T-67 Hendricks-F, 33, B-5	4	699
T-68 Hendricks-3-A, 35, B-5	5	160
T-68 Hendricks-B, 46, 26	2	194
T-88 Hendricks-A, 44, 26	6	815
T-88 Hendricks-B, 4, B-12	4	846
T-88 Hendricks-C, 29, B-5	7	802
T-88 Hendricks-D, 4, B-12	6	3,099
T-88 Hendricks-H, 28, B-5	6	1,154
T-88 Hendricks-I, 30, B-5	7	1,261
T-88 Hendricks-J, 30, B-5	5	883
T-88 Hendricks-K, 41, 26	5	1,311
T-88 Hendricks-L, 4, B-12	4	905
T-88 Hendricks-M, 33, 26	30	12,184
T-88 Hendricks-N, 28, 26	5	1,309
T-88 Hendricks-O, 28, 26	2	829
T-88 Hendricks-P, 28, 26	1	173
T-88 Hendricks-Q, 27, 26	2	746
T-88 Hendricks-R, 27, 26	2	864
T-88 Hendricks-S, 34, 26	4	1,260
T-88 Hendricks-T, 34, 26	7	502
T-88 Hendricks-U, 41, 26	7	1,443
T-88 Hendricks-V, 29, 26	1	99
T-88 Hendricks-W, 5, B-12	1	274
T-88 Hendricks-CX, 21, 26	1	530
T-89 Hendricks-A, 35, B-5	3	195
T-89 Hendricks-B, 35, B-5	2	602
T-89 Hendricks-C, 35, B-5	3	615
T-89 Hendricks-D, 35, B-5	1	244
T-89 Hendricks-E, 40, B-5	3	197
T-89 Hendricks-F, 40, B-5	2	304
T-89 Hendricks-H, 46, 26	2	310
T-89 Hendricks-I, 10, B-12	2	117
T-89 Hendricks-J, 9, B-12	5	2,049
T-90 Hutchings, 47, 26	1	279
Texon Oil & Land Co.:		
Hendricks-A, 41, B-5	6	676
Hendricks-B, 45, B-5	6	1,416
Winkler O. P. Co.:		
Hendricks, 33, 26	1	56
Grand total Hendricks Pool	563	135,177

Leck Area

Company, lease— Sec. Blk.	Wells	Prod.
Atlantic-Kessler & Logan:		
Leck, 3, 74	2	572
Amerada Pet. Corp.:		
Leck, 3, 74	2	658
Empire G. & F. Co.:		
Daugherty, 3, 74	3	434
Magnolia Pet. Corp.:		
Scarborough, 1, C-22	1	174
Gulf Prod. Co.:		
Scarborough, 1, C-22	1	76
Shell-Llano Oil Co.:		
Scarborough, 1, C-22	5	178
Shell-Danciger:		
Leck, 3, 74	2	201
Skelly Oil Co.:		
Leck, 3, 74	1	357
Prairie Oil & Gas Co.:		
Leck, 16, 74	1	337
Daugherty, 3, 74	1	259
Scarborough, 1, C-22	1	116
Warner-Quinlan:		
Leck, 3, 74	1	400
Total Leck Pool	19	3,762

O'Brien Pool

Company, lease— Sec. Blk.	Wells	Prod.
Arizona Mining Co.:		
Hendricks, 10, B-12	1	12
Marland Oil Co.:		
Morton, 10, B-12	2	274
Wents Oil Corp.:		
Morton, 10, B-12	1	310
Simms Oil Co.:		
Sealy, 50, 5	1	30
Richardson and others:		
Stockton, 50, F	1	183
Grand total O'Brien Pool	6	809
Grand total Winkler Pool	588	139,748

NEW PRINCIPLE USED IN PRESSURE CONTROL

(Continued from Page 171)

receiver, gas separator or absorber at any predetermined pressure—for example, 100 pounds, and that the regulator is set for this point of control.

If the pressure in the apparatus tends to build above this point it is transmitted to the small air valve in the regulating instrument which closes the supply of air or gas to the diaphragm valve, allowing the supply between the instrument and diaphragm valve to escape through an air leak by means of a spring located under the diaphragm top. This of course allows the valve on the outlet or discharge side to open, thereby bringing the pressure in the tank down to the desired point. When this point is reached naturally the pressure to the air valve is decreased which then allows the air valve to open admitting a new supply of air or gas to the top of the diaphragm valve, thereby partially closing the valve on the discharge, or if necessary close the valve completely. As the pressure in the apparatus continues to change, this cycle is again repeated as often as necessary to maintain the desired back pressure.

Flexible System

This system of control has many features and is very flexible.

First. A change in regulation can be made by turning the pointer on the dial to the right or left depending upon whether it is desirable to increase or decrease the pressure. This pressure can readily be seen as there is a gauge supplied with the instrument connected on the line leading from the apparatus to be controlled.

Second. The sensitivity of this instrument is uniform throughout the range of the control and if a higher range is desired, a higher pressure element can be installed in a few minutes by most any operator, as the instrument is very rugged and simple in its construction.

Third. It is not necessary to change the diaphragm in the valve for pressure changes except in extreme cases, as this can be taken care of by increasing or decreasing the pressure in the supply line to the instrument or by changing the spring tension under the diaphragm of the valve. Usually it is not necessary to make the latter change.

Fourth. Practical use and observation of this device prove that it is a sensitive and throttling type regulator which can be seen by inspection of some actual charts.

Fifth. In some cases it is desirable to locate the control instrument on a gauge board in the instrument room or any other convenient place which might be some distance from the diaphragm valve. This has been done in many plants and has met with entire satisfaction.

Sixth. In some cases conditions warrant the necessity of installing a recording pressure gauge so as to have a record of the pressure being controlled. When this is necessary a combined recorder-regulator can be used, which really is two instruments built in one similar to the combined temperature recorder-controller which has given excellent results.

Seventh. This regulator can also be changed in a few minutes to a reducing regulator by simply changing the air valve block to direct acting instead of reverse acting as regularly supplied in a back pressure type instrument. The operation of this equipment would then be the reverse as described in the first part of this discussion.

GASOLINE RESPONDS TO CRUDE ADVANCE

(Continued from Page 36)

able weather might still be a factor in the market.

Export Market

The export market is another factor in the present gasoline situation which merits consideration according to those in close touch with conditions. Export prices as quoted at the coast by the Petroleum Export Association had not been advanced up to Tuesday. With a 10-cent price at the coast for the export grade of 64-66 375 gasoline, export buyers cannot pay more than 8 cents North Texas refineries for spot orders. One export buyer is known to have purchased material at that price the latter part of last week.

This 8-cent price North Texas means 7⅞ cents Oklahoma for export movement. Thus the sellers are faced with the incongruous situation of asking as much or more for their U. S. Motor grade as they can get for high gravity export grade. It is assumed that the export prices will be advanced soon but until that development materializes the export prices are a bearish factor in the domestic market.

Other Products

With a limit at this time on the part that gasoline can take in offsetting the additional manufacturing cost brought about by the higher crude oil prices the refiner naturally turns to a consideration of other products. The outlook from this angle is not bright.

For several weeks the products in the Oklahoma refinery list have not been strong with the exception of gasoline and lubricating oil. The strength in the latter product is not generally important for the reason that of the 132 operating plants in the Mid-Continent less than a dozen have lubricating oil plants with which they can take advantage of the strong market which has obtained for several weeks.

All products sold as fuel including residuum fuel oils, gas oils and furnace distillates have been weak, a situation which is partly due to the fact that the heavy consuming season is over. Kerosene prices will do well if they are maintained at present levels over the next 60 days.

If there is price improvement in other products it apparently must come in the fuel oils and gas oils. Some believe that this will materialize due to the fact that greater quantities will be used in cracking operations. Unquestionably the higher crude oil prices will add to the attractiveness of the cracking operation at the average Oklahoma refinery.

This situation is readily apparent in a comparison of prices. Crude oil of 38 degrees gravity which is about the average refined at Oklahoma refineries, outside of the South Oklahoma district, now has a posted schedule at the wells of $1.55, an advance of 29 cents. Add 25 cents for pipe line transportation and the delivered refinery price is $1.80 per barrel or 4.3 cents per gallon.

In contrast refinery fuel oil which is suitable cracking stock at many refineries is worth 1.5 cents per gallon with overhead gas oil 2.25 to 2.5 cents per gallon. Between a skimming operation operating with 4.3-cent crude oil and a cracking operation with 1.5 to 2.5-cent raw material the advantage obviously lies with the latter by a wide margin.

Refiners are constantly improving and enlarging their cracking operations and the higher crude oil prices give additional impetus. This will tend to restrict the quantity of low gravity fuel oils offered as fuel and improve the prices received for this product.

Gasolines and Naphthas

Although many refiners advanced their U. S. Motor gasoline price to the trade to 8 cents on Saturday the Monday reports on which the average weighted prices are based showed considerable material still moving at 7¾ cents. Refiners expected the crude advance to result in a minimum of 8¼ cents to the trade.

The higher gravities will advance slowly unless export prices at the coast are advanced. The demand at present is confined to the domestic trade. Prices for domestic movement were advanced one-fourth cent during the past week.

Natural Gasolines

Natural gasolines continued sluggish until the first of the week. On Monday one large manufacturer started buying in substantial quantities. This buying together with the higher refinery market is expected to result in an improved price situation. Grades A and AA were selling at 6¾ to 7 cents, Grades B and BB 6¼ to 6½ and Grade C 6 to 6¼ cents.

Fuel Oils and Gas Oils

Up to Tuesday no price advance has been announced in West Texas crude oils. Higher prices in that area should aid the entire Mid-Continent fuel oil and gas oil market. Low prices from West Texas refineries have to a large extent dominated the market for several weeks and forced lower quotations in Oklahoma. Prices were not changed in the past week except that the low on gas oil is now 2⅝ cents an advance of one-fourth cent over last week.

Lubricants

Bright stocks in Oklahoma were again advanced. Sellers of stocks of good quality have more orders than they can handle and the higher prices have not stopped this business. Steam refined cylinder stocks unchanged.

F. H. WICKETT DIES; VICTIM OF PNEUMONIA

NEW YORK, May 18.—Frederick Henry Wickett, 60, president of the American Maracaibo company and former president of the Pan American Petroleum

F. H. Wickett

& Transport Co. and the Dixie Oil Co. of Louisiana, died of pneumonia at his hotel apartment. Mr. Wickett came to New York four years ago from Chicago.

GEORGE COYLE, PIPE LINE OFFICIAL, DIES

(Continued from Page 42)

which fitted him for the larger duties he was to have thrust upon him.

In 1903, Mr. Coyle was sent to Independence, Kans., with the Prairie Oil & Gas Co.'s pipe line system, and he took part in the hectic days of overproduction in Glenn Pool, Oklahoma, a few years later.

When the Standard Oil Co. was broken up into separate units, following the dissolution of the Standard Oil Trust in 1911, Mr. Coyle was made general superintendent of the Prairie Pipe Line Co., which had been made a separate organization from the Prairie Oil & Gas Co. Later he was elected a director of the company.

Mr. Coyle saw the growth of the Prairie pipe line from a relatively small gathering and transporting system in Kansas and northern Oklahoma to its present tremendous size and scope of usefulness. In 1903, when Mr. Coyle arrived in Independence, Kansas was producing an average of 2,500 bbls. of crude oil per day and Oklahoma only 350 bbls. per day. The following year the two States produced an average of 15,000 bbls. per day and in 1905, 33,000 bbls. per day. In 1906, came the opening of the Glenn Pool, in Oklahoma, and in 1907 production in the two States had risen to an average of 125,000 bbls. per day through the year.

The Prairie Pipe Line was the only important oil carrier in the Mid-Continent Field up to the days of Glenn Pool, when the Texas pipe line and the Gulf pipe line, were extended north from Texas. In all the years that have intervened the Prairie Pipe Line Co. kept pace with increased production, which at the present time in the two States is 265

times greater than it was the year Mr. Coyle arrived in the Mid-Continent.

The scope of the Prairie pipe line has vastly increased. Its line reaches from the Panhandle Field in Texas to southern Oklahoma, where it joins a system reaching from the Healdton district to the Gulf of Mexico in a southerly direction and to Chicago and Wood River, Ill., in a northerly direction. Mr. Coyle saw it grow to a place where it serves over 50,000 wells in Kansas, Oklahoma and Texas, which is more than half the wells in the territory in which the Prairie has its lines.

A Progressive Executive

Mr. Coyle was a progressive transportation man. He was willing at all times to change old methods to new ones if the new ones had the merit, and he had an unerring sense of selection. He kept the great system up to date, and it was always ready for any extraordinary demand put upon it. The company gave him large authority and reposed the utmost confidence in his ability to make good.

The great force of men employed by the Prairie Pipe Line Co. looked upon Mr. Coyle as a personal friend. He was not merely the boss; he was a man to go to when in trouble. Every Prairie man felt that he was a help and an inspiration. A close family feeling developed inside the organization by reason of the affection Mr. Coyle felt for every man in the service, and the result of it was a fine spirit of loyalty that helped materially in keeping the Prairie pipe line in the forefront of northern Mid-Continent transporting companies.

In the industry generally George Coyle held a high place. He was known from coast to coast in oil production states either personally or by repute, but those who knew him best will grieve the most over his death.

TECHNICAL SESSIONS FEATURE MEETING

(Continued from Page 38)

the fuel must possess at least 40 per cent effective volatility if the car is to be driven with a constant setting of the choke. As 40 per cent effective volatility is indicated by about the 12 per cent point on the A.S.T.M. distillation, it is clear that the 12 per cent point must be sufficiently low to supply this necessary volatility, even when driving with the choke. After the motor has become warmed up, or if it is desired to drive without use of the choke, the effective volatility must be at least 60 per cent. As 60 per cent effective volatility is related to about the 55 per cent point on the A.S.T.M. distillation, it is clear that the fuel must possess a sufficiently low 55 per cent point to supply the necessary effective volatility under the above conditions.

So far as ability to drive the car with use of the choke is concerned, the 15 per cent point on the A.S.T.M. distillation is probably the most important according to Doctor Brown. For satisfactory performance when driving without the choke the 55 to 60 per cent range on the A.S.T.M. distillation is probably most important.

A definite relationship has been found between the Reid vapor pressure as ordinarily determined and the temperature at which a fuel will probably cause trouble due to vapor locking. This relationship is found to be more satisfactory than any relationship derived from the A.S.T.M. distillation data, Doctor Brown stated.

Raoult's Law

The deviations from Raoult's law have been found by Doctor Brown to be dependent upon the relative amounts of different paraffin hydrocarbons present as well as upon the presence of different types of compounds. Generally the deviations from Raoult's law do not exceed about 15 per cent in the case of natural gasolines, motor fuels, and even naphthas and absorption oils, including tetralin.

Late Fields

(Continued from Page 46)

feet and is cementing 8-inch casing at 3,635 feet. It is reported that the well is 60 feet higher on the Viola lime than the discovery well.

Prairie Oil & Gas Co.'s No. 1 Laster, NE cor. SE NE, Section 19-6-4, Pottawatomie County, has been drilled to a total depth of 3,679 feet and gauged 1,835 bbls. on Tuesday morning.

The gauge on the Seminole area for Tuesday morning was 299,910 bbls. and for St. Louis Pool was 94,605 bbls., making a total of 394,515 bbls., being the largest number of barrels produced in the greater Seminole area since proration was lifted on May 15.

GULF COAST

HOUSTON, Tex., May 21.—Possibilities of new dome production in the Gulf Coast were indicated Tuesday following a blowout in The Texas Company's No. 1-A, Dog Lake Bayou, Section 6-22s-16, East Terrebonne Parish, Louisiana. The well blew out after drilling 6⅝-inch plug at 991 feet from a depth of 988 feet and is estimated to have made at the rate of 10,000,000 feet of gas daily before bridging over. Bottom of the hole is in an oil showing sand at 1,056-62 feet which was to have been tested. This dome is one of the prospects taken over several months ago from the Louisiana Land & Exploration Co.

The Texas Company's rank wildcat in Plaquemine Parish, Louisiana, Section 107-3s-32e, also is being watched closely after picking up a good appearing oil showing at 1,662-73 feet. It has set 6⅝-inch casing at 1,554 feet.

Humble Oil & Refining Co.'s No. 7 Sugarland, DeWalt, Fort Bend County, Texas, came in late Monday flowing an estimated 1,200 bbls. daily at 3,670 feet.

CALIFORNIA DELEGATES AT CONVENTION

Seated left to right—J. A. Campbell, J. A. Campbell Co.; George L. Ratcliffe, General Petroleum Corp.; D. M. Wolfe, Standard Gasoline Co.; W. W. Robinson, Jr.; Ben C. Dumm, Cooper Bessemer Corp.; Louis V. Cassaday, Lomita Gasoline Co. Standing—J. W. Reed, Cooper Bessemer Corp.; J. S. Watson, Shell Oil Corp.; and E. L. Tobias, Bankline Oil Co. and The Norwalk Co.

MUST WIDEN NATURAL GASOLINE MARKET

(Continued from Page 39)

tee has worked hand in hand with Doctor Brown. The research problems of the association have been carefully outlined and budgeted by this committee with the result that the work is now practically completed. The committee is seriously considering the advisability of asking Doctor Brown to review his three years' work in book form in order to make the entire investigation more available to all interested parties.

The Specifications Committee has been very active during the year. Early in the year the doctor test was added to the official specifications for natural gasoline. Specifications for motor natural gasoline were adopted as of October 1, 1928. During the year the upper gravity limit of Grade C natural was raised from 90 to 92 degrees A.P.I. Specifications for aviation natural gasoline were also studied but action has been deferred. Perhaps the most important problem of this committee has been that of revising the specifications for the standard grades of natural gasoline. This problem has been referred to the Technical Committee for its recommendations.

The Technical Committee deserves especial praise for it has apparently worked hard throughout the year. Besides the assistance rendered the Specifications Committee, the Technical Committee has been largely instrumental in getting the Reid method adopted and has worked faithfully with the Bureau of Explosives to promulgate vapor pressure transportation limits which would satisfy the requirements of that organization and at the same time safeguard the interests of the natural gasoline industry. This committee has answered numerous inquiries regarding the handling, storage and blending of natural gasoline. Through the chairman of the Technical Committee the natural gasoline industry had a voice in the conferences relating to the new federal specifications for U. S. Motor gasoline.

The Sales Managers Committee has held several meetings during the year to discuss their particular problems. Perhaps the most important of their discussions have had to do with the effect of a revision of natural gasoline specifications on sales problems.

The Plant Operators Meetings Committee under Doctor Lederer's leadership held a very successful plant operators meeting at Ranger, Tex., on February 26, 1929. The meeting was attended by some 300 field men.

The Gas Contract Committee has made further studies of the advisability of standardizing on uniform gas contract forms, but the question is still open.

Research Program

The research program of the association as originally outlined is practically completed. Doctor Brown will summarize his year's work tomorrow. During the year he has continued his investigations of the equilibrium volatility of motor fuels, the vapor lock problem and the vapor pressure relationships of motor fuels and natural gasoline. The effective volatility of motor fuels was perhaps the most important problem of the year. In addition, I believe Doctor Brown has established some very valuable relationships between the motor fuel Engler distillation and the operating volatility of the fuel. We will receive tomorrow's progress report with great interest, and I am sure, profit.

At this time it is only fitting to state that the association's research program has already accomplished much that was expected of it. A good portion of the letters of inquiry received by the association have been directly attributable to Doctor Brown's work. By virtue of the contributions to a better knowledge of motor fuel requirements made possible by the research program, the natural gasoline industry has gained a position of respect that would have been impossible otherwise.

The research program has been characterized by a very obvious desire not only to expand the markets for natural gasoline wherever possible but also to limit those markets where further extension would result in public dissatisfaction. This attitude has created many friends for the natural gasoline industry.

Technically, the association has sponsored a research program seeking to define the maximum volatility permissible in satisfactory motor fuels. Heretofore practically all investigators had worked to define the minimum volatility. The results of Doctor Brown's studies will certainly provide the natural gasoline, the refining, and automotive industries with the means of adapting their products to the requirements of the motoring public.

Two outstanding results of the research program are already evident. The first is that Doctor Brown has finally succeeded in "selling" the natural gasoline industry on the value of its own product. Indeed, we can picture the day when our industry will cease to shiver with apprehension when the epithet "casinghead blend" is whispered in our markets. Confidence in the actual value of a commodity is an essential of salesmanship. The second result is the growing prestige of the natural gasoline manufacturer. There is a widespread feeling that our association is exceedingly well equipped to supply its members with the technical information necessary to assure the utmost satisfaction in the marketing of motor fuels. One very pronounced example of this growing prestige was the presence of Doctor Brown, Mr. Buchanan and Mr. Oberfell at the recent conferences concerning the new specifications for U. S. Motor fuel.

The Association is, indeed, to be complimented on the progressiveness in sponsoring its research program and is to be congratulated on its good fortune in having placed the program in charge of so faithful and personable a man as Doctor Brown.

The important activities for the future are the continuation of the co-operative functions of the association. The Research and Educational Committee will have before it the problem of making the best use of Doctor Brown's work. The data obtained should be given the widest possible distribution. The Specifications and Technical Committees have important unfinished tasks before them. Perhaps the most important problem before these committees is the revision of natural gasoline grades to conform with the rapid improvements in motor fuel technology.

Future Outlook

As to the outlook for the immediate future, too much depends on the efforts of the oil industry to overcome the problems of surplus production to permit a definite prediction at this time. Regardless of the outcome of our present problems it can only be reiterated that varied markets is the chief requisite for our continued prosperity.

Much progress has been made in the diversification of markets for the products of the natural gasoline industry. Aviation natural gasoline has become a very considerable factor in its markets and in continued use has established its unquestionable superiority over ordinary fuels. Markets for liquefied petroleum gases are being rapidly developed. One very promising development of the year has been the continued trend toward more volatility in the average motor fuel as reflected by the semiannual reports of the United States Bureau of Mines.

It is my opinion the natural gasoline industry can look forward to the future with the confident feeling that its opportunities have merely been sampled; that with diligence and foresight the industry will continue its prosperity; that by imagination, actively converted to deeds, the industry will find new and profitable markets for its products.

One pleasant feature of the past year has been our relations with other co-operative agencies of the oil industry. First and foremost in this field comes the California Natural Gasoline Association. Although our own organization is a few years older we will have to look to whatever laurels we have gained or the Pacific Coast will wear them. The splendid feature of their rapid growth

When the field plays out will your tanks stand moving?

GRAVER

Natural Gasoline Storage Units

provide

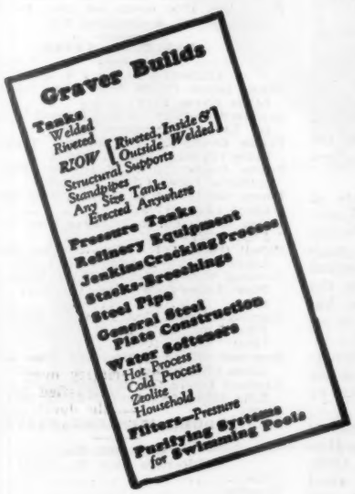
Flexibility - Any capacity storage you need can be provided with these tanks—just add more tanks—or—ship those not needed to another plant.

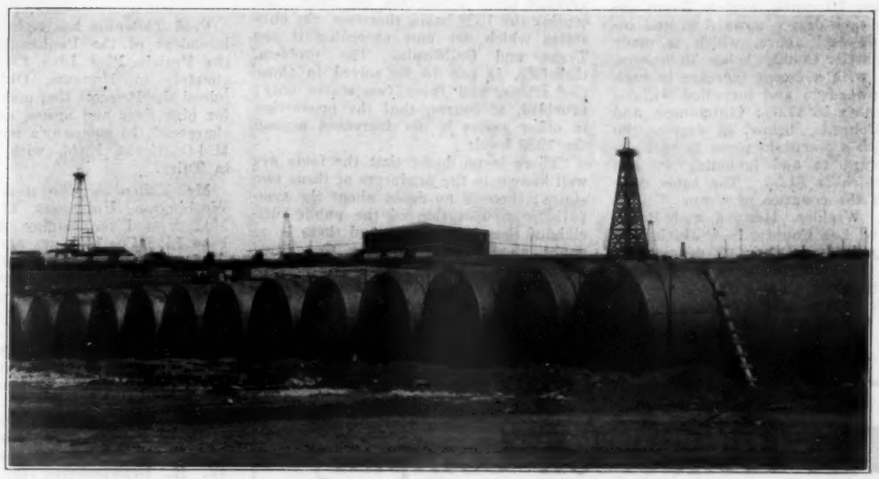
Strength - - Riveted and welded construction gives strength necessary to withstand operating conditions and moving as often as necesasry. All of these tanks are shop built.

Low Cost - The original cost is low, as the tanks are built in standard sizes, in quantity production, from stock steel plate. The installation cost is low. The usual foundation is but a low concrete saddle. No insulation is necessary as the tank will withstand the extra pressure.

Shipment - - Shop erection is always faster than field erection. Stock plates and standardized sizes speed fabrication.

Get a quotation from Graver on these tanks





GRAVER Corporation Founded 1857

EAST CHICAGO, INDIANA

NEW YORK	CHICAGO	FORT WORTH	LOS ANGELES
Grand Cent. Term.	America Fore Bldg.	Petroleum Bldg.	Pacific Nat'l Bank Bldg.

is the spirit of co-operation they have always manifested.

Last year it was my pleasure to introduce to the association, the Natural Gasoline Supply Men's Association. It was then only in the process of formation but we all recall the hospitality with which they supplied entertainment for the convention. The Supply Men's Association has again volunteered to see that entertainment is provided for this year's convention and to them we are indebted for the Dutch lunches, the stag smoker and the annual dance, as noted on the program. In behalf of the Natural Gasoline Association of America I want to thank the Supply Men's Association for their hospitality. At the same time I want to urge our members to remember that the companies supporting the Supply Men's Association are staunch supporters of our association and should share in the distribution of our patronage.

In conclusion, I wish to express my appreciation of the way in which the other officers, the directors and members of the association have carried out the work of the organization. The good work of the association could never have been accomplished without the moral and financial support of all the members. Much has been done that would have been impossible for individual companies. Because much remains to be done I ask for your continued support of the association. Its achievements and aims make it worthy of every natural gasoline manufacturer's support.

PRAIRIE OIL & GAS CO. STARTS PRICE INCREASE

(Continued from Page 40)

making 36 gravity $1.45 and 37 gravity and above $1.50, or a 25 and 27-cent increase over the old schedule. The Midwest Refining Co. was expected to advance Cat Creek to a level with the Elk Basin and Grass Creek price, which is $1.65 on the new schedule, which would mean a 12-cent increase in Cat Creek.

The Humble's New Postings

The Humble Oil & Refining Co., effective May 20, met the advance of the Prairie Oil & Gas Co. in North and Central Texas crudes. It advanced Gray County, Texas, crude as follows: Below 29 degrees, 90 cents, with a 5-cent increase in each degree upward to and including 44 and above, which is made $1.70; Wheeler County, below 30 degrees, 90 cents, with a 5-cent increase in each degree upward to and including 44 and above, which is $1.65; Hutchinson and Carson Counties, below 32 degrees, 90 cents, with a 5-cent increase in each degree upward to and including 44 and above, which is $1.55. The same company put the counties of Crane, Upton, Crockett, Winkler, Howard and Pecos, Texas, and Lea County, New Mexico, on a gravity basis. Below 25 degrees the price in the counties named is 70 cents; 25 gravity is 74 cents with a 4-cent increase upward to and including 36 and above at $1.18. The Humble also posted Mirando, Tex., at 90 cents and Salt Flats (Joe Bruner) at $1.25. The Humble posted Gulf Coast Grade A at $1.30, a 10-cent increase, and on Grade B posted below 25 degrees $1.15, with a 3-cent increase in each degree upward to and including 35 and above, which is $1.48.

Effect in Mid-Continent

The effect of the new Mid-Continent prices on some of the larger fields was considerable. In Seminole, with its production of 286,000 bbls. (including some wildcat wells) the 25-cent, 33-cent and 35-cent increases gave Seminole producers about $96,165 per day more than they were receiving under the old schedule, while St. Louis producers, with a production of 93,000 bbls. per day are benefited $26,970 per day. In Sedgwick County, Kansas, where the crude averages 42 gravity, producers will receive an increase of $11,840 per day for their 32,000-bbl. daily production.

Producers of 32 gravity oil benefited least in the upward range of prices, the schedule according them a 17-cent increase. In the western Oklahoma fields like Garber, Tonkawa and Logan County increases of 35 to 41 cents per barrel were given.

As a whole Kansas producers were benefited about $35,000 per day and Oklahoma producers about $180,400 per day, while North and Central Texas producers benefited approximately $42,000 per day.

COMPACT IS BELIEVED UNCONSTITUTIONAL

(Continued from Page 37)

mittees of the American Petroleum Institute, after a careful study of the figures, reached a unanimous estimate that the production of 1928 is sufficient to meet the consuming demands of 1929 and that with improved methods of refining this same figure will be sufficient for several years to come. By comparison of the daily average production of 1928 with the production as of April 27, 1929, it will be seen that the increase is confined to Texas and California, with the exception of Kansas, where the increase is only 5,118 bbls. In Oklahoma the average daily production for 1928 was 681,852 bbls., while on April 27 it was 663,300 bbls., and if Oklahoma and Kansas are treated as a unit the production of these two states on April 27 was less than their average daily production for 1928. Accepting the 1928 basis, therefore, the only states which are now exceeding it are Texas and California. The problem, therefore, is one to be solved in those two states, and those two states only; provided, of course, that the production in other states is not increased beyond the 1928 level.

"There is no doubt that the facts are well known to the producers of these two states; there is no doubt about the sympathetic co-operation of the public officials of these two states, and there is no doubt about the ability of those two states, acting independently and without any interstate compact, to accomplish the necessary reduction in order to bring about a state of balance between production and consumption.

"It is equally clear that such action as the state governments of these two states may take in the matter is for their sole determination. They have a perfect right within their own boundaries to conserve their own resources, and there can be no question of a violation of the federal antitrust laws involved. In fact, for about three years, Oklahoma, Texas and California, each acting independently of the other, by co-operation between producers and the state authorities, have been taking similar action, and no question under federal law has ever been raised, nor has there been a suggestion from any source that these state governments, in making orders through their commissions, have been violating federal law.

"The trouble heretofore has been that there was no comprehensive study of the world-wide problem, and, therefore, neither the industry as a whole nor the authorities of those states have had a definite mark at which to aim. Now, however, it is universally understood that the 1928 production is ample to provide the 1929 requirements, and that with improved refinery processing, even that figure can be reduced—and it will have to be reduced in the course of time, when production begins to decline.

"In conclusion, I repeat two statements contained in the letter of the Federal Oil Conservation Board of April 8, 1929, as follows:

" 'The investigations of the board over the past few years have demonstrated large wastes in the production and utilization of our oil, and an alarming prospect as to our future supplies,'

"And again:

" 'The problem appears to the board, therefore, due to the legal inhibitions, to be one in the real solution of which action must be secured from the different states.'

"The solution rests with Texas and California, and should not be delayed while we are waiting for a possible agreement between several state legislatures and Congress upon an interstate compact."

Fred Thilenius Joins Prescott Co., Makers Of Pipe Line Pumps

Fred Thilenius has resigned as superintendent of the Panhandle division of the Prairie Pipe Line Co., with headquarters at Mangum, Okla., and has joined the Prescott Co., makers of pumps for pipe lines and mines, and will be in charge of the company's territory in the Mid-Continent Field, with headquarters in Tulsa.

Mr. Thilenius, who is a graduate of Washington University at St. Louis, Mo., entered the employ of the Prairie Pipe Line Co. 14 years ago as an engineer. He was given several important promotions, the most recent being the division superintendency, which he has filled for the past two years, only to resign to take up a new line of work.

Mr. Thilenius is at present at Menominee, Mich., the headquarters city of the Prescott Co., but will shortly take up his duties in Tulsa.

He will be succeeded as superintendent of the Panhandle division by R. G. Hinley, district foreman at Cleveland, Okla. W. E. Brandenberry of Tulsa, chief gauger, will succeed Mr. Hinley, and Laurent B. Smith of Independence, Kans., chief tank strapper, succeeds Mr. Brandenberry.

PARKERSBURG RIG AND REEL ENGAGES BOWMAN

A. M. Bowman, formerly chief purchasing agent for the Humble Oil & Refining Co. in Houston, Tex., president of the National Purchasing Agents Association and secretary of the American Petroleum Institute's committee on Standard Rigs and Derricks, has been made district manager for the Parkersburg Rig & Reel Co. in Oklahoma and Kansas. Mr. Bowman's association with the oil industry began early, for the swimming hole in which he paddled about in his school days was in the famous Oil Creek of Pennsylvania, along whose banks pioneer history was made.

Mr. Bowman's first job was as a messenger boy for the National Transit Co. in Oil City, Pa. Later he became a buyer of oil for Joseph Seep. After 16 years in this work he was employed by the Toledo (Ohio) Gas, Light & Coke Co. Two years later a consolidation resulted in his being transferred to the new oil town of Beaumont, Tex., as a scout for the Gulf Production Co. Other positions in the production and supply departments of the oil business followed, and in 1920 he became purchasing agent for the Humble. Mr. Bowman has taken up his new position with the Parkersburg Rig & Reel Co., making his headquarters in Tulsa.

CRUDE OIL PRICES

(Continued from Page 175)

Osage	1.65
Lost Soldier (contract)	1.00
Hamilton Dome (May 21, 1929)	.85
Greybull	1.65
Cat Creek (Montana) (May 21, 1929)	1.65
Sunburst (Montana) (May 21, 1929)	1.65
Torchlight	1.65
Hogback (New Mexico) (May 21, 1929)	1.70

Note—Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Refining Co., and the remainder by the Ohio Oil Co. Both companies post Grass Creek light and Elk Basin.

SOUTH CENTRAL AND SOUTHWESTERN TEXAS

Luling (January 11)*	$ .80
Mirando (May 20, 1929)†	.90
Salt Flat (May 20, 1929)§	1.25
Rockdale-Minerva (April 15):	
Below 28 gravity	1.25
28-38.9 gravity	1.27
39-39.9 gravity	1.29
40 and above	1.31
Thrall‡	...
Callihan (May 15)	1.75
Lytton Springs (Lockhart)	See gravity table
Somerset	See gravity table

On May 20, 1929, the Humble Oil & Refining Co. put Crane, Upton, Crockett, Winkler, Howard and Pecos Counties, Texas, and Lea County, New Mexico, crude oils on a gravity basis and posted the following prices: Below 25 degrees 70 cents, with a 4-cent increase in each degree upward to and including 36 degrees and above which is $1.18.

*Posted by Magnolia Petroleum Co.
†Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co.
‡Thrall prices same as North Central Texas less 19½ cents per cwt. freight.
§Humble Oil & Refining Co.

EASTERN STATES

(Effective January 4, 1929)

Penna Grade Oil in New York Transit Lines (New York)	$4.10
Bradford District Oil in National Transit Lines (Pennsylvania)	4.10
Penna Grade Oil in National Transit Lines (Pennsylvania)	4.00
Penna Crude Oil in Southwest Pennsylvania Lines (West Virginia)	4.00
Penna Grade Oil in Eureka Pipe Line Lines (Pennsylvania)	3.90
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	3.85
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia) (April 27)	1.60
Corning 35-cent Grade Oil in Buckeye Pipe Line Co.'s Line (January 25, 1929)	1.65
Corning 25-cent Grade Oil in Buckeye Pipe Line Co.'s Lines (January 25, 1929)	1.75
Somerset Oil in Cumberland Pipe Line Lines (Kentucky) (March 12, 1929)	1.65
Ragland Grade Oil in Cumberland Pipe Line Lines (Kentucky) (Jan. 29)	.60

MIDDLE WESTERN STATES

Ohio Oil Co.
(Effective May 21, 1929)

Lima	$1.80
Wooster	1.90
Illinois	1.75
Indiana	1.57
Princeton	1.75
Plymouth	1.28
Waterloo (November 17, 1926)	1.35
Western Kentucky	1.53
Dundee, Mich. (May 15, 1929)‖	1.90
Midland, Mich. (April 15, 1929)*	1.50
Saginaw, Mich., Saginaw Sand (February 10)†	1.89
Saginaw, Mich., Berea Sand (February 10)†	1.79
Cumberland, Clay, Barren, Clinton and Monroe Counties, Kentucky, (March 16)‡	1.50
Oil in line in Stoll Oil Refining Co. in Oil City, Ky. (May 1, 1929)§	1.65
Oil Springs (Canada)¶	2.37
Petrolia (Canada)¶	2.20

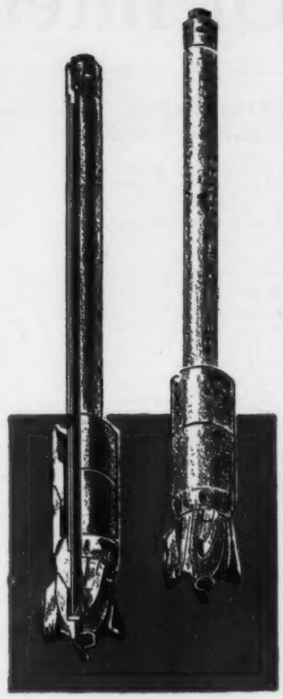
*Posted by Pure Oil Co.
†Posted by Sun Oil Co.
‡Posted by Paragon Development Co.
§Posted by Stoll Oil Refining Co.
¶Posted by Imperial Oil Co., Ltd.
‖Posted by Standard of Indiana.

The Henderson Company
PRODUCERS AND MARKETERS
NATURAL GASOLINE AND PETROLEUM PRODUCTS
National Bank of Commerce Building
TULSA, OKLAHOMA

Man—

Without tools he is nothing. With tools he is all.—

Thomas Carlyle



Perfection Core Barrel

A.P.I. Tool Joint

A.P.I. Fish Tail Bit

A.P.I. Gumbo Bit

The Oil Man—

with BREWSTER (AP) Products knows the "all" of tool efficiency and satisfaction

The Brewster COMPANY~INC.
SUCCESSORS TO OIL CITY IRON WORKS INC.
Shreveport, Louisiana

Distributed by: Continental Supply Co., *All stores*—Wilson Supply Co., *Houston and Beaumont, Tex.*—Hercules Supply Co., *Dallas, Tex.*—T. T. Word Supply Co., *Lake Charles, La.*—Murray-Brooks Hdw. Co., *Lake Charles and Hackberry, La.*—*Exporters:* Continental Well Supply Co., 74 Trinity Place, New York City, N. Y.

Of Interest to Sales Departments

1928 GASOLINE TAXES EXCEED $300,000,000

A total of $305,233,842 in state gasoline taxes was collected during 1928 according to data collected by the Bureau of Public Roads and the Department of Agriculture. All states contributed to this total with the exception of Massachusetts and New York, which did not have a tax in 1928. In Illinois a tax was collected one month, the law providing for the tax being declared unconstitutional in February, 1928.

It is estimated that the state gasoline taxes will easily exceed $400,000,000 due to increases in the tax rate and that the fact that Massachusetts, Illinois and New York will have taxes in force over part of the year.

Following is the report showing tax collection and net gallons taxed as compiled by Bureau of Roads:

State	Receipts	Gallons
Alabama	$ 6,614,297	162,438,774
Arizona	2,018,238	50,455,046
Arkansas	5,382,782	106,147,481
California	29,566,769	985,558,973
Colorado	3,921,224	130,707,467
Connecticut	3,511,675	173,437,589
Delaware	800,349	26,678,310
Florida	11,257,617	224,704,496
Georgia	8,245,486	206,137,161
Idaho	1,884,023	47,096,637
Illinois*	*836,826	*41,841,273
Indiana	11,177,549	372,584,968
Iowa	8,535,628	284,520,934
Kansas	5,394,841	269,742,067
Kentucky	6,743,224	134,835,629
Louisiana	3,380,931	169,046,556
Maine	3,192,384	79,011,319
Maryland	5,425,873	135,646,826
Massachusetts	.....	.....
Michigan	18,324,840	611,161,335
Minnesota	5,768,100	288,404,998
Mississippi	5,696,553	136,334,223
Missouri	6,948,229	247,411,433
Montana	1,683,404	56,113,461
Nebraska	3,941,164	197,058,187
Nevada	531,186	13,279,660
New Hampshire	1,884,175	47,079,932
New Jersey	8,470,336	422,346,478
New Mexico	1,852,037	36,738,005
New York	.....	.....
North Caroline	9,787,011	244,675,269
North Dakota	1,479,469	73,973,434
Ohio	24,885,699	829,523,293
Oklahoma	8,147,901	279,996,597
Oregon	4,008,259	144,284,704
Pennsylvania	21,998,064	733,268,795
Rhode Island	1,182,328	59,116,396
South Carolina	5,518,240	110,364,802
South Dakota	3,158,873	78,965,809
Tennessee	5,134,600	171,153,333
Texas	17,945,037	681,135,373
Utah	1,664,652	47,577,166
Vermont	1,118,882	37,311,088
Virginia	8,616,239	174,800,793
Washington	4,206,515	210,325,734
West Virginia	4,308,109	107,547,068
Wisconsin	6,856,759	342,837,969
Wyoming	954,317	31,810,562
Dist. of Columbia	1,263,148	63,157,367
Total	$305,233,842	10,178,344,771

*Only January tax receipts reported as law was found invalid by Supreme Court, February 24, 1928.

TO ANNOUNCE DATES FOR JOBBER EQUIPMENT SHOW

At a meeting of the board of directors to be held in Chicago the last week in May, definite action will be taken in regard to the date on which the first show of the National Oil Show, Inc., will be held. The association was recently formed by manufacturers of oil jobber equipment for the purpose of holding an annual show and convention of special interest to all marketers of petroleum products. The association will include in its membership refiners and marketers of refinery products.

The first show will be held at Chicago. Several of the membership have expressed the opinion that January will be a better month to hold the show rather than during the fall or spring, the usual periods for national meetings of oil jobbers. Association officers will be glad to hear from jobbers as well as manufacturers relative to the most desirable date for the exhibit.

According to officers of the organizations several state associations have expressed a desire to co-operate with the national organization. The matter of state memberships is now being worked out by the directors.

Lou Harrington, recently elected managing director of the association, has opened offices at 6 North Michigan Ave. The following men comprise the present board of directors, which ultimately will be increased to twenty-one members: John A. Cadle, McSavaney Co., Springfield, Ohio; Stanley W. Foran, Bennett Pumps Corp., Muskegon, Mich., and Service Station Equipment Co., Bryan, Ohio; S. C. Fulkerson, American Ideal Sign Co., Marion, Iowa; Lou Harrington, National Oil Show, Inc., Chicago; J. F. Heffron, MacBeth Evans Glass Co., Charleroi, Pa.; William A. Knapp, Butler Mfg. Co., Kansas City, Mo.; Paul G. Kramp, National Enameling & Stamping Co., Milwaukee, Wis.; J. C. McWilliams, The Julian Pump & Mfg. Corp., Jamestown, N. Y.; A. R. Miller, Union Metal Mfg. Co., Canton, Ohio; W. F. Rockwell, Pittsburgh Equitable Meter Co., Pittsburgh, Pa.; S. G. Scott, Williams Sealing Corp., Decatur, Ill.; John Thune, Petroleum Age, Chicago, Ill.; O. R. Waller, Petroleum Marketer, Tulsa, Okla., and Chicago; A. W. Wheaton, A. W. Wheaton Brass Works, Newark, N. J.; E. B. Ringham, Perfection Mfg. Co., Minneapolis, Minn.; James A. Cannon, A. J. Stevens Grease & Oil Co., Kansas City, Mo., and K. S. Clapp, U. S. Air Compressor Co., Cleveland, Ohio.

TO ENTER EXPORT MARKETS

LOS ANGELES, Calif., May 18.—The Rio Grande Oil Co. which is building a $2,000,000 terminal at Long Beach will become factor in export markets when the terminal and the enlargement program at the company's refinery is completed. The company will have facilities to ship fuel oil and case oil to the Orient and Australia. The company also will be in a position to move its products to East Coast buyers.

The company has an improvement program under way which will double the capacity of its refinery at Vinvale. The refinery is assured an adequate crude oil supply from the Elwood Field which is controlled by the Rio Grande and Barnsdall Oil Co.

Who's Who
IN PETROLEUM REFINING AND MARKETING

By C. O. Willson

Fourth of a series of articles concerned with the major refining and marketing organizations in the United States.

Standard Oil Co. of New York

The Standard Oil Co. of New York is an outstanding example of the progress made by several of the original Standard units which through steady expansion have maintained leadership as refiners and marketers of petroleum products.

At the time of the dissolution in 1911 the New York Standard was a relatively small unit with small refining capacity and market outlets confined to a few states in the eastern part of the United States. The operations of the parent company have grown steadily but the greatest expansion has come through subsidiary companies.

The principal subsidiaries of the company are the Magnolia Petroleum Co., operating in the Southwest, and the General Petroleum Corp., a major operator on the West Coast. Through these companies the New York company has not only acquired additional refining and marketing facilities but also has obtained large crude oil production and adequate transportation facilities for the movement of crude oil and refined products.

The daily crude oil capacities of the operating refineries are as follows:

STANDARD OIL CO. OF NEW YORK Location—	Capacity (bbls.)
Greenpoint, N. Y.	25,000
Buffalo, N. Y.	3,500
Providence	10,000
Total	38,500
MAGNOLIA PETROLEUM CORP. **(All plants in Texas)**	
Beaumont	55,000
Magnetco	10,000
Luling	2,000
Corsicana	3,000
Fort Worth	10,000
Total	80,000
GENERAL PETROLEUM CORP. **(All plants in California)**	
Vernon	55,000
Lebec	10,000
Olinda	3,000
Torrance	30,000
Total	98,000
Grand total	216,500

In addition to their refineries both the Magnolia and General are large manufacturers of natural gasoline. The General corporation has six plants in California with a total capacity of 312,000 gallons daily and the Magnolia company has 30 plants scattered throughout the Mid-Continent with a capacity of 107,520 gallons daily.

Both the General and the Magnolia organizations are complete units and operate largely independent of the parent company so far as their refining and marketing divisions are concerned. Both have distinctive trade-marks for their refined products.

The Standard of New York is the dominant marketing organization of New York and the New England states, although this territory in recent years has been invaded by other Standard units and major independent companies. In this territory the company has over 600 bulk stations and more than 1,200 service stations. The company has a large number of dealer outlets.

The Magnolia company is considered the most important Standard distributor in the States of Texas, Oklahoma and part of Arkansas. It also has a few stations in Kansas, New Mexico and Louisiana. The General's market operations center on the West Coast in the states of California, Oregon and Washington.

The bulk of the refining capacity of the parent and subsidiary companies is located along the coast and in addition to its domestic business the company is a large exporter of refined products. Through the Standard Transportation Co., a subsidiary company, it is one of the largest owners of tankers and barges in the oil industry.

With its present refining facilities the Standard of New York could readily expand its domestic market outlets to include all coastal states. At present it does not have pipe line transportation facilities to enter the Middle West and other interior points.

TRADEMARK "DIAMOND B" INFRINGES "DIAMOND C"

The First Assistant Commissioner of Patents has sustained the decision of the examiner of trademark interferences, which held that the trademark "Diamond B" for motor oils was an infringement of the trademark "Diamond C." The Sinclair Refining Co. is the owner of the trademark "Diamond C" and petitioned for cancellation of the trademark "Diamond B" owned by Robert Hickman Blackburn.

The First Assistant Commissioner of Patents points out in his decision that the Sinclair company has sold lubricating oils bearing the trademark "Diamond C" since 1919. The registrant at one time was a distributor of the Sinclair products.

Regarding the similarity of the two trademarks the decision says:

"The registrant has pressed the view that a diamond or a diamond shape is an exceedingly common part of trade marks which have been registered and used upon many classes of goods, including those here involved, from a date long prior to the entrance of the petitioner into the field with its mark. Upon this basis it is urged by the registrant that the distinction between the two letters of the alphabet, as such letters are used in the respective marks, is sufficient to establish that it is unlikely there will be confusion in trade.

"The registrant also invites attention to what may be deemed well enough established, that a representation of a diamond is under many conditions the equivalent of the word diamond and conveys the same meaning to a customer.

Similarities Are Noted

"While the main contentions of the registrant may be accepted as correct yet the trade marks must be considered as a whole and when this is done it is thought their similarities outweigh their differences. There are some letters of the alphabet, such as B, C, D, E, P, T, etc., which are recognized as sounding alike. Confusion in using such letters in connection with messages over the telephone is a matter of common knowledge.

"It is thought there would be confusion even in customers orally calling for the particular goods if both parties to this proceeding were using their respective marks in the same market upon the same class of goods. It is held the registrant has approached too near the petitioner's trade mark."

SMALL MARKETERS BLEND KEROSENE WITH GASOLINE

OKLAHOMA CITY, Okla., May 18.—There is considerable blending of kerosene with gasoline among the smaller dealers in Oklahoma according to H. V. Byrd, gasoline tax collector in the state auditor's office. The dealers buy the kerosene from refiners under the gasoline price and are thus able to undersell some of their competitors and still make money. Nothing can be done at this time to stop these violations because the present law is unenforced.

In some cases according to Mr. Byrd two quarts of gasoline were being blended with one quart of kerosene.

The present state law covering this matter is unenforceable according to Mr. Byrd. An effort is being made during the present session of the state legislature to pass a law which will provide a bond for all gasoline distributors in the state. In case of violation of any regulations covering specifications or in case the dealer is delinquent in the payment of his tax the bond would be forfeited.

"*You* ought to use Ethyl *too!*"

HE knows the thrill of riding with Ethyl—the kick of taking hills without shifting and having full power when he needs it most.

THE best salesmen of Ethyl Gasoline are the people who use it in their cars. Thousands of them, telling their friends about it, have helped to make Ethyl one of the most extraordinary successes in automotive history.

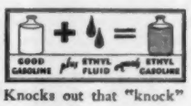
Ethyl is good gasoline plus a vital ingredient —Ethyl fluid. This anti-knock compound was developed after years of research by automotive science to make gasoline a more efficient automobile fuel. It brings out of any car an added power impossible to obtain with ordinary gasoline.

So greatly does Ethyl fluid improve the gasoline with which it is mixed that leading oil companies in the United States, Canada and Great Britain add it to their gasoline to make Ethyl Gasoline. You will find it on sale, now, wherever you drive. Start riding with Ethyl today.

Ethyl Gasoline Corporation, 25 Broadway, New York; 56 Church Street, Toronto; 36 Queen Anne's Gate, London.

SHE will find that Ethyl means quicker pick-up, more power, better control and added assurance of safety, greater comfort and pleasure in motoring.

ETHYL GASOLINE



Knocks out that "knock"

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Hypochlorite Process in Refining

Explain Preparation of Solution and Application of Treatment in Refining Straightrun Gasoline. Large Savings

By S. F. Birch Ph. D.*

PART 1

In an introduction to this series by Dr. A. E. Dunstan, a short history was given of the development of the hypochlorite process together with an account of its advantages over sulphuric acid and plumbite for refining gasoline. In the present article a description is given of the methods by which the hypochlorite solution is prepared for use.

Methods Available

Free hypochlorous acid is never used as such for refining gasoline owing to its tendency to react and form chlorine-containing compounds. It is much more safely and conveniently used in the form of salts. the sodium or calcium salts generally being employed.

Although hypochlorous acid itself can be obtained by passing chlorine into water and then converted into salts by neutralization this is never actually done in practice. The three methods in use are:

1. Passing chlorine into caustic soda solution or milk of lime.
2. Dissolving bleaching powder (chloride of lime) in water.
3. Electrolyzing brine.

Of these the first is by far the most usual but the second method, although more expensive, is suitable for districts where chlorine is not readily available. For example, the whole of the hypochlorite solution used in the Persian refineries of the Anglo-Persian Oil Co. is prepared in this way, the bleaching powder in a concentrated form specially stabilized by the addition of lime being shipped from England in iron drums. Electrolysis of brine, although formerly employed for preparing sodium hypochlorite, is no longer used owing to the very low price of chlorine in bulk.

Preparation of Solution

When chlorine is passed into water, hypochlorous acid, together with an equivalent quantity of hydrochloric acid, is formed. These acids can only exist in solution when the solution is very dilute and if it is concentrated they react to regenerate the components from which they were formed. This can be expressed thus:

$$Cl_2 + H_2O \rightleftharpoons HOCl + HCl$$

If the acids are neutralized as formed, that is to say if caustic soda or lime is present in the water, the salts of the acids are formed and are quite stable even in concentrated solution:

$$HOCl + HCl + 2NaOH = NaCl + NaOCl + 2H_2O$$

It must be noted that although half of the chlorine is converted into chloride, which takes no part in the refining, it is not wasted, for oxygen equivalent to the whole of the chlorine used is available for the oxidation of sulphur compounds.

$$NaOCl = NaCl + O$$

In making hypochlorite solutions, suitable for the treatment of gasoline distillates, by the solution of chlorine in soda solution or milk of lime several precautions are necessary. The chief factor controlling the hypochlorite process is the quantity of free alkali present in solution. This not only determines the stability of the hypochlorite solution when prepared but also determines the speed of the refining action. In the early stages of the process this was not realized and it was only when it had been properly appreciated that the process became workable. Neutral solutions or solutions containing only traces of free alkali decompose spontaneously on storage or during preparation or use.

The free alkali content is therefore carefully controlled by chemical analysis so that the alkalinity of the wash is between 0.5 and 1 gm. free caustic soda per liter. This is a very important point and must be carefully watched during the preparation of the stock solution. Hypochlorite solutions containing this quantity, or more, of free alkali are said to be "stabilized."

Other important controlling factors in the preparation of the stock solution are the careful and steady flow of chlorine and the cooling and vigorous agitation of the alkaline solution. Although it is stated in the text books that when preparing hypochlorites by passing chlorine into caustic soda the temperature must not rise above 95 degrees Fahrenheit, in actual practice it has been found that higher temperatures are possible without risk of spoiling the batch. Temperatures as high as 110 degrees Fahrenheit do not appear to have any deleterious effect and are often reached.

Sodium Hypochlorite

Sodium hypochlorite has been used extensively for the refining of light petroleum products but it has now been almost completely superseded by the calcium salt which is cheaper. The sodium hypochlorite solution is prepared by passing chlorine into a 10 per cent solution of caustic soda contained in a large cast iron vessel surrounded by cold water (or provided with cooling coils) and vigorously agitated. The temperature is maintained at approximately 100 degrees Fahrenheit and the chlorine added until the free alkali content, determined chemically, reaches 4 gm. per liter. In this way a 2N stock solution is prepared which is then diluted to 0.34 N, the usual working strength, and contains roughly the required amount of free alkali. To prepare approximately 3,000 gallons of 2N sodium hypochlorite solution, 2,800 pounds of caustic soda, 3,000 gallons of water and 2,300 pounds of chlorine are required. On dilution this gives 18,000 gallons of 0.34 N solution of the correct alkalinity.

Towards the end of the chlorine absorption the flow of chlorine should be reduced and stopped altogether while tests are being made as it is very easy to exceed the amount required. Once a batch has become overchlorinated it rapidly decomposes with considerable evolution of heat; it is then quite useless.

Calcium Hypochlorite

Calcium hypochlorite solution is prepared in very much the same way as sodium hypochlorite except that lime is used instead of soda. Quicklime is first slaked in vessels which are mechanically agitated, 2,680 pounds of quicklime being added to 1,500 gallons of water. The milk of lime produced has a specific gravity of 1.10 and is pumped to the absorbers where it is diluted with another 1,300 gallons of water which have been used to wash out the slaker. The specific gravity of this solution (or rather, suspension) is then 1.05. The chlorine addition is carried out in exactly the same way as in the preparation of the sodium salt, an absorber holding 3,000 gallons taking five hours for completion in winter and three hours in summer (due to the extra pressure in the chlorine container).

The flow of chlorine is reduced towards the end of the reaction and the alkalinity carefully controlled by analyses. Towards the end of the operation the solution becomes noticeably pink in color owing to the oxidation of traces of manganese salts to permanganate. This color change is a useful guide to the operator. When finished the batch is run to settling tanks where it is allowed to remain for at least 12 hours. The stock solution, prepared in this way is roughly 2N, has a specific gravity of 1.10 and is saturated with lime, the solubility of which is approximately 1.3 gm. per liter or .04 N. If the settling is bad. the alkalinity remains the same when the stock solution is diluted owing to the solution of lime held in suspension. Nowadays, however, it is usual to work with hypochlorite solution saturated with lime and to insure this, the stock solution is diluted with the washings from the settling tanks.

The 2,680 pounds quicklime, 3,000 gallons of water and 2,300 pounds chlorine give roughly 3,000 gallons of stock solution or 18,000 gallons of treating solution of 0.34 N strength.

Calcium Hypochlorite From Bleaching Powder

If chlorine is not available, calcium hypochlorite solution can be prepared by dissolving bleaching powder in water.

A new product is now in the American market, manufactured by the Mathieson Alkali Works and known by the trademarked name of H.T.H., which not only possesses a high chlorine content (65 per cent) but is remarkably stable. This product, being a true calcium hypochlorite made by an entirely new and exclusive process, is not to be classed with commercial bleaching powder. It is now being submitted to preliminary tests to determine its possibilities for use in refinery petroleum.

In Persia a three-stage Dorr leaching and counter current washing plant is used which is capable of handling 50 tons of bleaching powder every 24 hours. The available chlorine content of the bleaching powder now in use is between 30 and 32 per cent and the solution produced is 0.6 N. The leaching efficiency of the plant is over 99 per cent.

Bleaching powder after leaching with

*Of the Research Staff, Anglo-Persian Oil Co.

HYPOCHLORITE PROCESS HAS MANY ADVANTAGES AS TREATING METHOD

Introduction by A. E. Dunstan D.Sc. and F. B. Thole D.Sc.*

The refining of petroleum, which includes both the initial fractional distillation of the crude oil and the subsequent treatment necessary in order to convert the products into marketable commodities, has passed through many phases of development since the early days of the industry. The lines of development have naturally varied according to the requirements of the time; at one period gasoline and heavy oil were useless by-products and the efforts of the refiner were directed towards the manufacture of the maximum quantity of illuminating oil. These efforts gave birth to the earliest cracking processes. In recent times the need for obtaining the maximum possible yields of many sharply cut distillates of various types has led to the development of the art of fractional distillation to a degree of efficiency never before attained.

While, however, the technique of separating the various fractions has shown a steady and striking improvement in efficiency which has been paralleled by the keen attention devoted to the most economical utilization of all the products of the oil well and the reduction of unnecessary waste to a minimum, the other side of the refining industry which deals with the subsequent chemical or physical treatment of these fractions to render them suitable for use has been until very recently less progressive and more wasteful.

Chemicals not altogether suitable for the purpose in view have been used because they were good enough, and often their relative inefficiency has been compensated for by the use of excessive quantities. Recovery of spent reagents, which could have been accomplished economically with the application of some research, has been neglected and, more important still, the degree to which the refining treatment need be carried has been at one time too small and at another time too great. All petroleum technologists will recognize that sometimes a gasoline is marketed which on account of some specific deleterious components, such as gum or elemental sulphur, is entirely unfit for use as a motor fuel. On the other hand very impressive figures have been recently brought forward to show that vast quantities of gasoline and chemicals are needlessly wasted in producing a motor fuel with a sulphur content much below that really necessary for safe and satisfactory usage.

The chemical side of petroleum refining is every whit as important as the engineering side and there are indications that during the last two or three years it has been receiving a fairer proportion of the attention which is its due. A comprehensive study of the various methods of chemical and physical treatment employed in refining petroleum distillates would need an encyclopedic treatise and it is the object of the present series of articles to direct attention to one small section of the operations, upon which the authors have concentrated their research efforts for some years past. This deals with the problem of treating the gasoline portion of petroleum in such a way as to eliminate as far as may be necessary the undesirable sulphur compounds which are present in practically all unrefined gasolines. In particular, an account is given of one particular method of treatment which has been very fully studied by the authors of these articles, which has attained very considerable prominence as one of the latest and most efficient desulphurizing processes and which has been used exclusively for several years by one of the greatest individual petroleum companies in the world, the Anglo-Persian Oil Co.

Sulphuric Acid

Sulphuric acid, which was the first refining agent used for hydrocarbon material, is still widely used. It was orig-

(Continued on Page 194)

*Of the Research Staff, Anglo-Persian Oil Co.

SERIES OF ARTICLES

The accompanying articles by Dr. S. F. Birch are Parts 1 and 2 of a series of four discussions on the general subject of the "Hypochlorite Process in Petroleum Refining." Dr. A. E. Dunstan of the Anglo-Persian Oil Co. also discusses the process in an introductory paper.

In Part 1 Doctor Birch discusses the methods used in preparing the hypochlorite solution. In Part 2 the application in treating straightrun gasoline is explained.

In Parts 3 and 4 which will be published in the May 30 issue, Part 3 explains the application to other petroleum products and Part 4 gives a short account of the chemical reactions involved in the process.

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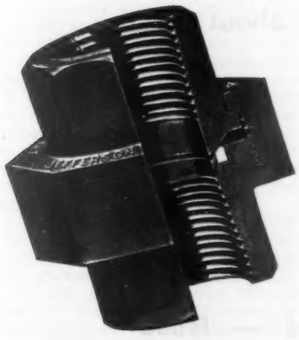

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water of course leaves a considerable quantity of lime sludge. This can either be pumped away or can be used for a variety of refinery purposes where dilute alkali is required.

Part 2

The use of a solution of sodium or calcium hypochlorites has been considerably extended in the past few years. Although at one time it was solely used for the desulphurization of gasoline, better understanding of the mechanism of the chemical reactions involved has considerably increased the scope of its application so that at the present time besides being used for straightrun gasoline, it is also employed in the refining of kerosene and of cracked distillates. The present article is confined to the application of hypochlorite treatment to the refining of straightrun gasoline.

Application to Straightrun Gasoline

Hypochlorite solution can be applied to the treatment of sulphur-containing gasolines in two ways. First, sufficient of the reagent may be used to convert all or nearly all, of the sulphur compounds into water-soluble oxidation products, thereby giving a desulphurized gasoline. Second, a smaller proportion, just sufficient to convert the malodorous mercaptans into inoffensive and doctor-negative disulphides may be used. This treatment is a sweetening but not a desulphurizing process. It, of course, effects a very considerable saving in chlorine and has been rendered possible by the realization that complete desulphurization is not only relatively costly in chemicals but is also unnecessary. As a sweetening agent, hypochlorite has largely replaced acid for treating kerosene before the desulphurizing and decolorizing treatment with absorbent earths. In fact, so generally applicable has the process become that if a partial desulphurization of a gasoline distillate—as distinct from sweetening—is desired, this can usually be effected by employing a suitably limited quantity of hypochlorite.

The hypochlorite process as applied at the present time is carried out briefly as follows: The gasoline is first freed from hydrogen sulphide by washing with lime water or caustic soda. It is then agitated either in a batch washer, an orifice mixer or a series of countercurrent washers with a solution of sodium or calcium hypochlorite. The gasoline is separated from the spent hypochlorite solution and given a water wash to remove traces of the spent hypochlorite and also any traces of water soluble oxidation products of the sulphur compounds. Finally the gasoline is given a caustic soda or lime wash and is then finished. If the treatment has been properly carried out, the finished gasoline possesses a pleasant odor, gives a negative doctor test and is noncorrosive.

Initial Soda Wash

As hypochlorite solutions readily convert hydrogen sulphide into elemental sulphur and as they are without further action on it, the necessity for freeing the gasoline to be "hypo" treated from hydrogen sulphide cannot be too strongly emphasized. Free sulphur is by far the most corrosive substance liable to be present in present day gasoline and it is essential, if the finished product is to give a good copper dish test, that no free sulphur should be present.

Unlike the plumbite process, in which free sulphur is essential and plays an important role in the treatment, the hypochlorite process needs no sulphur addition. Sulphur once formed can only be removed by distillation. Prevention is therefore very much cheaper than cure.

Hypochlorite is not the only oxidizing agent which may come in contact with the gasoline and create elemental sulphur. Air is readily soluble in gasoline and rapidly oxidizes any hydrogen sulphide present to free sulphur, so that if a stock of unrefined gasoline is allowed to accumulate in storage tanks, the dissolved hydrogen sulphide will, in the course of a few hours, be oxidized to sulphur. Hydrogen sulphide must therefore be removed before it has any opportunity of being oxidized and the best place for its removal is in the actual condensing system of the crude stilis. The most convenient way of carrying out the treatment is to pass the vapors through a scrubber into which caustic soda solution is pumped. Steam and vapors partly condense and the condensation is completed in the usual condensers. The condensed water containing the soda is recirculated, a quantity (say 10 per cent) of caustic soda being used for makeup. Owing to the condensation of steam the soda solution circulated is of roughly 1 per cent strength. Alternately the gasoline should be washed as soon as it leaves the condensers.

The initial soda wash, besides removing hydrogen sulphide, effects a very considerable saving in chlorine, for some of the acidic sulphur compounds, the mercaptans, are removed also. Lime water can be used in place of soda, but a much greater bulk of liquid must then be handled as the solubility of lime in water is limited—about 1 pound per 100 gallons.

The concentration of the soda used is important, particularly when washing the distillate after condensation. The more dilute the solution in which a given weight of soda is employed, the more efficiently it removes mercaptans. The dilution naturally has practical limits and, in fact, it has been found that the most convenient concentration at which to work is 5 per cent. Recovered soda may be used for removing the hydrogen sulphide before the mercaptan-removing soda wash is applied. It must be noted that although mercaptans are dissolved by soda, the removal is never complete and a sweetening treatment is always necessary.

Hypochlorite Treatment

The actual treatment must vary considerably with the plant available and the gasoline to be treated. As a general rule, in batch washing the soda-washed straightrun gasoline is first given a water wash followed by hypochlorite treatment in two stages. Roughly two-thirds of the total hypo wash is given in the first stage amounting with a gasoline of .08 per cent sulphur content to a 16 per cent treatment with 0.34 N solution; the mixing is continued until the wash is spent or almost spent, usually about two hours, when it is allowed to settle and run off. The remainder of the treatment is then given, say 9 per cent of 0.34 N solution and the agitation continued until the gasoline reaches a definite degree of refining which is conveniently shown by a test known as the "permanganate test." The spent hypo wash usually contains very little unused hypochlorite and is discarded.

The "permanganate test" referred to is a measure of the extent to which the treatment has been carried and consists in shaking a definite volume of the gasoline drawn from the washer with a known volume of acidified N/10 permanganate solution for a fixed time. The excess of permanganate is then estimated and the amount used up found by difference. This quantity gives a very good measure of the sulphur compounds remaining in the gasoline. It is usual to determine the permanganate test given by the finished gasoline which meets the required specification and work to this figure. When it is reached the washer is dropped. This test, of course, cannot be applied to cracked distillates.

Continuous Treatment

Batch washing for hypochlorite treatment has now been very generally superseded by a continuous countercurrent treatment using calcium hypochlorite. This form of treatment has the advantage that the spent calcium hypochlorite solution still contains free alkali and, coming into contact with the raw gasoline, helps to remove the mercaptans present. In this way the actual hypochlorite treatment necessary is considerably reduced. In this method of refining the stock solution is generally diluted to a lower concentration than usual (say .07 N), lime water, obtained from the hypochlorite settling tanks being used for the purpose. It is not necessary to work at this low concentration but by so doing, the tendency to form traces of chlorine-containing compounds is lessened.

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ment of the process, owing to the poor contact obtained in the washers then in use, the action became so slow in the last stages of the treatment that it was usual to speed it up by neutralizing some or all of the free alkali left in the wash. This process was known as "destabilization" and was effected by adding dilute sulphuric acid or sodium bicarbonate to the washer. As a result it was found that chlorination was liable to occur and it was probable that this was one of the reasons why the early attempts to apply the process gave rise to adverse criticisms. In the light of our present knowledge, we know that destabilization must be avoided if a chlorine-free product is desired. The breaking down of emulsion (which, however, are only formed if the treatment is not conducted properly) by the addition of acid is therefore inadvisable.

Final Soda Treatment

The hypo-treated gasoline, after a water wash (usually 10-20 per cent) to remove traces of hypochlorite solution held in suspension, then receives a final soda wash. This wash, which should be very thorough, serves to remove any traces of chlorine compounds formed during the preceding stage. When such compounds are present they are nearly always derived from the sulphur compounds originally present in the gasoline—the mercaptans and to a lesser extent, the disulphides. They can, however, be readily removed by strong caustic soda solution or, if the mixing is sufficiently good, by weak soda solution or lime water. Intimate mixing is essential when the time of contact is short. Actually very little soda is used in the process, but it is usual to employ a 20 per cent caustic soda solution and replace it by fresh alkali when it falls below 10 per cent strength. The usual soda solution can be used in other parts of the refining or in the earlier stages of the treatment. Lastly, the gasoline is generally given a finishing water wash to remove traces of soda or lime.

Countercurrent Treatment

The continuous countercurrent washing equipment of the Llandarcy and Abadan refineries of the Anglo-Persian Oil Co. consists of 11 washers. These washers, although comparatively small, are so efficient that their throughput is comparable with very much larger washers of the older type. A special form of agitation giving very intimate contact is employed. Of the 11 washers, the first five are used for the hypochlorite treatment which includes the washing of the raw gasoline with alkaline spent hypochlorite while the remaining six are used for lime washing, to remove traces of chlorine compounds.

As stated above, calcium hypochlorite solution is used, the stock solution being diluted with saturated lime water to give an 0.07 N solution. A 50 per cent wash of this dilute solution is given, the large volume being rendered possible without loss of throughput by the design of the plant. The alkali-wash used for the final treatment consists of either 0.6 per cent of 10 per cent caustic soda or 6 per cent of saturated (.04 N) lime water. The hypo treatment, which corresponds with 1.35 grams of chlorine per litre of gasoline, reduced the sulphur content of straightrun Persian gasoline from 0.08 to 0.03 per cent. The finished product is excellent in odor, noncorrosive, and free from chlorine and negative to doctor.

The cost of the treatment must obviously depend on the crude oil from which the gasoline is derived and also on the plant available as well as the overhead costs. The treatment described above including chlorine, lime and labor works out at less than 5 cents per barrel.

HYPOCHLORITE PROCESS HAS MANY ADVANTAGES

(Continued from Page 190)

inally applied for refining Shale Oil in Scotland and "coal-oil" in England and the United States. As its value was proved, it was only natural that when in the United States "coal-oil" was replaced by petroleum as a source of illuminating oil, sulphuric acid should be chosen as the likeliest refining agent. It proved reasonably satisfactory and, notwithstanding the enormous advances made in petroleum technology since those days, it remains today the most widely used material for refining petroleum products.

Sulphuric acid has retained this position chiefly on account of its low cost and its wide applicability for the refining of both light and heavy products. Its chief disadvantage lies in the loss of oil caused by its use and the difficulty of disposing of the acid sludge produced during the treatment.

Refining by Plumbite

During the first decade of this century petroleum refiners discovered that not only could a considerable saving in acid be effected by treating "sour" distillates before or after the acid treatment with a solution of lead oxide (litharge) dissolved in caustic soda, but that the finished products possessed a better odor and were more stable to light. The reason for this was not at first in any way understood except that it was known that the sulphur compounds were the cause and that these were in some way altered by the treatment and tended to remain in the residue on re-distillation.

Combined acid and plumbite treatment gave a satisfactory product and the process became generally adopted. Like the acid treatment, however, plumbite-refining suffers from the disadvantage that a sludge is formed which has either to be disposed of or submitted to further treatment to recover the lead it contains.

Refining by Hypochlorite

Attempts were made by various investigators to use hypochlorites for refining sulphurous oils as long ago as 1894, in which year Frasch took out a patent for a process for refining oils by treating them first with sodium hypochlorite and then dechlorinating the product by means of sodium plumbite.

Many years before this, chlorine itself had been suggested but abandoned owing to the resulting heavy chlorination. Thus Watson Smith in 1880 passed chlorine into petroleum oils and distilled off a spirit having "a faint and agreeable odor"; no mention is made, however, of the chlorine content of this product which must have been very high. S. E. and E. E. Johnson in 1875 prescribed a very similar treatment but completed the refining by filtration through charcoal. Free hypochlorous acid or chlorine water were also employed but again chlorination of the oil rendered the process impracticable.

In 1903, Colin and Amend patented a desulphurizing process in which was used an alkaline solution of sodium hypochlorite to which salts of certain metals such as iron, manganese, cobalt, nickel, copper, etc., had been added. It was claimed that the metallic oxides formed exerted a catalytic effect in the refining. Many other investigators worked on the process and some came remarkably near the truth, but it remanied for Dunstan and Thole in 1918 to put the process on a sound footing. They found that the success of the process hinged on the quantity of free alkali present in the hypochlorite solution. If too little alkali is present, the solution is unstable and there is a tendency for chlorination to occur while if too much is present, the time required for desulphurization becomes so long that the treatment becomes impracticable.

This explained why many of the previous workers failed. Colin and Amend's "catalytic oxide" effect was due to the reactivity of the sodium hypochlorite being increased by the removal of the free alkali by the mineral salts. Under these conditions (neutralized hypochlorite), however, the hydrocarbons as well as the sulphur compounds were attacked. In view of the knowledge now available it seems surprising that attempts are still made by some refiners to operate the hypochlorite process by dissolving the chlorine in the gasoline before adding the alkali or by some equally impossible method of employing the chemical reagents necessary. Such methods are doomed to failure from the beginning.

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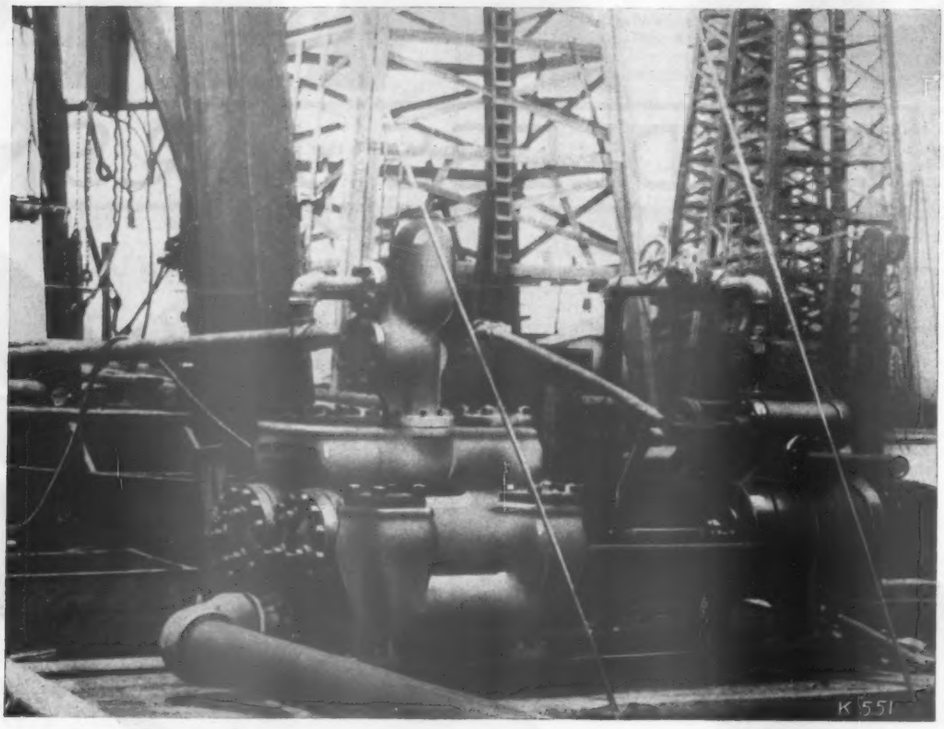

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owing to the high chlorine content of the finished gasoline. Even if redistillation is employed the chlorinated substances will be only partly removed while excessive plant corrosion will also occur.

Range of Alkalinity

Dunstan and Thole found that the range of alkalinity over which the process could be successfully operated for desulphurizing a straight run gasoline was from 0.5 to 1.0 gms. free caustic soda per litre. Within this range the reagent produced an excellent gasoline, non-corrosive and negative to the doctor test. Later the sodium salt was replaced by calcium hypochlorite which gave similar results but effected a considerable saving in cost owing to the lower price of lime.

Early attempts to apply the hypochlorite process to the desulphurization of cracked distillates failed. Chlorination occurred and the quantity of hypochlorite used up was almost unlimited. By carefully studying the reactions of hypochlorite with different types of sulphur compounds, it was found possible to modify the process so that hypochlorite of suitable alkalinity could be used in place of plumbite to sweeten (though not to effect thorough desulphurization of) cracked distillates. It is not possible altogether to dispense with acid or with redistillation since cracked spirit contains gum-forming hydrocarbons which require some polymerising agent such as acid or fullers-earth for their elimination. The sweetening can also be accomplished by using dilute calcium hypochlorite solution saturated with lime; under these conditions the tendency to form chlorine compounds is very much reduced without the sweetening action being in any way impaired.

Since many gasolines while containing enough constituents (mercaptans) to render them "sour" and consequently unmarketable, yet have a total sulphur content too small to render them unfit for use as motor fuel, alkaline hypochlorites can be used to sweeten sour straight run gasolines without effecting complete desulphurization and it is actually in this way that it is chiefly employed at the present time since it produces the required effect with the minimum consumption of chemicals. In fact hypochlorite can with great advantage replace plumbite in the refinery while it possesses the added quality that it can, if desired, be used to effect desulphurizing as well as sweetening.

Advantages of Process

To the average refinery manager, the most obvious advantage offered by the hypochlorite process over any treatment involving the use of acid or plumbite is that the spent wash contains nothing of value nor any obnoxious material; its disposal, therefore, offers no difficulties. No expensive plant, such as is required for the recovery of lead or acid sludge, is necessary, since the hypochlorite effluent is simply sodium or calcium chloride and can be run to waste.

Furthermore, as it is non-poisonous, the effluent can even be discharged into rivers or lakes without any risk of injury to animal life. This is very often an important point. Hypochlorites have also the great advantage over acid, that the solutions are not corrosive, so that the danger of corrosion of plant and possible injury to operatives is eliminated.

In view of the importance of anti-knock in the evaluation of a motor fuel today, it is imperative that the refining process employed should not in any way reduce the anti-knock value. Here hypochlorites score heavily over acid as nearly all straight run gasolines contain aromatic hydrocarbons (benzol, toluol and the like), which are soluble in sulphuric acid. Further, cracked gasolines contain olefines which are good anti-knock hydrocarbons, but which again are attacked by sulphuric acid. Any reduction in the acid treatment, for example, by giving a preliminary sweetening treatment with alkaline hypochlorite, therefore tends to reduce the decrease in anti-knock value on refining and thereby increases the value of the product as a motor fuel.

The most careful engine tests have proved that a gasoline after hypochlorite treatment has exactly the same anti-knock characteristics as before. The strictly selective action of hypochlorite in attacking sulphur compounds but not hydrocarbons results in a further economy. Sulphuric acid, on account of the fact that it attacks not only sulphur compounds but also aromatic and olefinic hydrocarbons present in the gasoline, invariably causes a material loss of the gasoline treated. Hypochlorite attacks the sulphur compounds only and as these are usually present in very small amounts (generally a small fraction of one per cent) even in an unrefined gasoline the consequent loss is much smaller than that involved in acid treatment.

Unlike plumbite, hypochlorite solutions need not be protected from the carbon dioxide in the air and a stock solution can be kept in storage in open tanks for a considerable time without any serious risk of deterioration. Furthermore, as no sludge is produced during the treatment, less loss of gasoline occurs through entrainment.

Perhaps the greatest advantage of hypochlorite over the lead treatment is that there is no need for the troublesome addition of sulphur to throw down the "rags" with the attendant risk of adding too much and rendering the whole batch of gasoline corrosive. The hypochlorite process again lends itself to operation in a closed system and for this reason is particularly to be recommended for the treatment of natural gasoline where evaporation losses are liable to be excessive. Many natural gasoline manufacturers are in fact employing it specially on this account.

As stated previously a marked advantage of the hypochlorite process over acid and plumbite treatment is the fact that it can be used either for desulphurization or for merely sweetening simply by modifying the conditions of preparation. The partial desulphurizing action of plumbite is due, as is now well known, to the absorption of a portion of sulphur compounds on the led sulphide precipitate. The unabsorbed sulphur compounds remain in the oil and can only be partly removed by distillation when they tend to remain in the residue. On the other hand, when desulphurizing with hypochlorite, the sulphur bodies are converted to water-soluble compounds which dissolve in the spent hypo wash and so pass into the effluent.

The hypochlorite process has proved of great value in districts difficult of access, such as Persia, since the transportation of bleaching powder is far easier and less dangerous than the transportation of sulphuric acid.

The cost of chlorine for sweetening and partly desulphurizing Persian gasoline is approximately 3 cents per barrel, a considerably lower cost than that of an equivalent plumbite treatment. In the subsequent articles a more detailed account will be given of the methods by which hypochlorite can be made and applied to various petroleum distillates to achieve the degree of refinement aimed at.

IRAK PIPE LINE POOL

The port of Haifa, which is generally accepted as the Mediterranean terminal of the Irak pipe line, is the subject of plans by the Palestine government which include proper provision for the petroleum trade. The Vacuum Oil Co. has acquired land there for an installation.

TO OPERATE IN MOROCCO

Development in the petroleum industry of Morocco is reported. Associated in the formation of a large petroleum group are the Banque de Paris et des Pays-Bas, the Cie Generale du Maroc and the Cie Marocaine. This organization, formed by the Bureau des Recherches et Participations au Maroc et Financiere, has now obtained the rights owned by several companies operating in Morocco. The leading factor in the new organization is the Cie Cherifienne de Petrole.

STAMINA

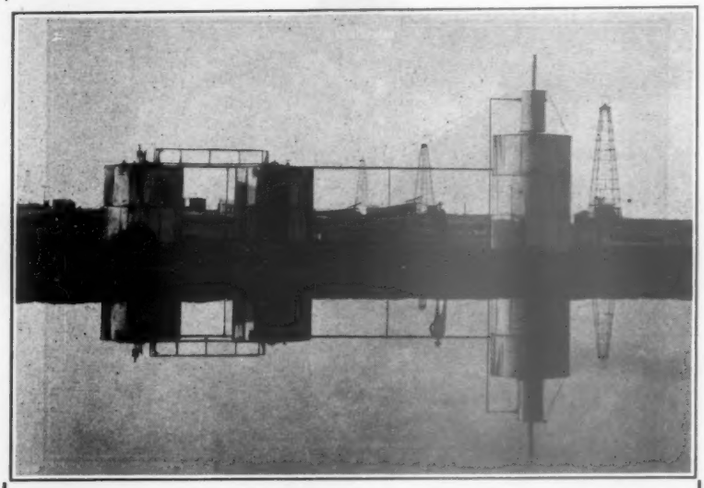
A characteristic of the Eagle and also of the products manufactured by The Garlock Packing Company, Palmyra, N. Y.

SOARING majestically above the clouds this king of birds often flies to a height of 23,000 feet. Besides having super strength, the eagle has great Stamina and has been known to exist without food for as many as forty days at a time. This inherent tenacity for life is the work of nature's selective breeding of the survival of the fittest.

The Stamina of Garlock Packings is based on the same general principles as that of the Eagle. It is the result of the knowledge obtained from correctly packing mechanical units combined with the proper selection of basic materials to evolve a Mechanical Packing that is known as "The Standard Packing of the World."

A Garlock Service man is in a position to help solve any of your Packing Problems. His training as a Packing Expert is fortified with a line of Garlock Products which will economically conquer any packing condition that may exist in your plant.

KEYSTONE COPPER STEEL



Good Tanks—from Every View-Point

Judged from the view-point of *durability, tightness, strength* or *ease of erection,* MALONEYS are good tanks.

MALONEY durability is assured by manufacture of rust-resisting Keystone Copper Steel. Our patented "crimp" seams and joints, our superior packing, our Gaso cement, and our method of reinforcing *all* seams (including deck seams) with rigid steel channels, render MALONEYS vapor-tight throughout. Bolts with a tensile strength of 90,000 pounds, large cleaning out plates set flush with bottoms, and Maloney special pearl gray paint, are other features. We use unexcelled valves and thief hatches.

Illustrated are one 750-bbl. and two 500-bbl. MALONEYS used by Southern Crude Oil Purchasing Co., Westbrook, at Wink, Texas. Erected by Distributer Ira N. Ellis.

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MALONEY TANK MFG. COMPANY

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Distributers at All Principal Petroleum Points

Sizes: 12 to 10,000 Barrels

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MADE OF KEYSTONE COPPER STEEL

MALONEY PATENTED BOLTED COPPER-STEEL TANKS

MADE OF KEYSTONE COPPER STEEL

MALONEY

ALONE

NEW LOCATIONS IN TEXAS PANHANDLE AND NORTH AND WEST TEXAS FIELDS

TEXAS PANHANDLE

Carson County

McConnell Oil Co.'s No. 1 J. C. McConnell, 330 feet south and west NE cor. W half NE, Section 65, Block 4, I.&G.N. Survey. Midwest Exploration Co.'s No. 1 E. Cooper, 330 feet north and west SE cor. W half NW, Section 5, Block 9, I.&G.N. Survey.

Hutchinson County

Holmes and others' No. 2 J. K. Quinn, 990 feet north and 330 feet west SE cor. SW, Section 7, Block 9, I.&G.N. Survey.

Gray County

The Shamrock Co.'s No. 3 W. S. Clayton, 330 feet south and 150 feet east of the northwest corner of the east 277.4 acres of Section 50, Block 25, H.&G.N. Survey. Same company's No. 1 W. S. Clayton-B, 730 feet south and 150 feet east of the northwest corner of the east 138.7 acres of Section 50, Block 25, H. &G.N. Survey. The Texas Company's No. 2 M. A. Shaw, 1,000 feet north and 330 feet east of the southwest corner of the east 279 acres of Section 5, Block 1, A. C.H.&B. Survey. Phillips Petroleum Co.'s No. 1 W. Jackson (Cox), 330 feet south and west of the NE cor. NE, Section 58, Block B-2, H.&G.N. Survey.

Moore County

Amarillo Oil Co.'s No. 1 N. H. Read-A, at the C NW, Section 14, Block B-12, D.&P. Survey.

NORTH CENTRAL AND WEST TEXAS

Archer County

Bailey-Damuth Drilling Co.'s No. 1 A. P. Jackson, 300 feet north and 200 feet west of the SE cor. E half of Lot 136, W. B. Aldridge Survey A-2. Continental Oil Co.-Perkins & Cullum's No. 2 L. F. Wilson-B, 150 feet north and 500 feet west of the SE cor. SE SW, Section 114, A.T.N.C.L. Survey. Harry Hines' No. 1 J. W. Dowlen, 450 feet north and 2,640 feet west of the SE cor., Section 24, Block 1, H.&T.C. Survey, A-1,241. Hi-Land Oil Co.'s No. 1 E. N. Birdwell, 750 feet north and east of the southwest corner of the south 125 acres of the north 150 acres of the E. N. Birdwell 200-acre tract out of the C. Wright Survey, A-666. T. F. Hunter and others' No. 1 D. L. Bishop, 450 feet south and 800 feet east of the NW cor., Section 52, G. P. Meade Subdivision, L. M. Pasture Survey. T. F. Hunter and others' No. 1 J. F. Kovar, 1,487 feet south and 150 feet east of the NW cor., Section 2,438, T.E.&L. Survey. E. B. Madden's No. 17 J. T. Richardson, 150 feet north and 1,050 feet east of the southwest corner of his 125-acre lease out of Section 1, South Anderson Ranch Subdivision. Panhandle Refining Co.'s No. 1 John Rater, 1,250 feet north and 450 feet east of the southwest corner of the west 160 acres of Section 2, Indianola R.R. Survey A-851. Gulf Production Co.'s No. 5 H. L. Ward and others, 750 feet north and east of the southwest corner of B.B.B.&C. Survey, A-36. Petroleum Production and Humble Oil & Refining Co.'s No. 1 Falls County School Land-A, 700 feet south and 700 feet east of the northwest corner of the west 50 acres of Section 60, Falls County School Land, A-130. Petroleum Production Co. and others' No. 2 A. M. Kunkel-B, 150 feet south and west of the northeast corner of the south 40 acres of the north 80 acres of the NE, Section 3, B.B.B.&C. Survey, A-51.

Brown County

American Maracaibo Co.'s No. 1 F. H. Cross, 150 feet south and 731 feet east of the northwest corner of the F. H. Cross tract out of the R. Honeycutt Survey, No. 623. Same company's No. 2 F. H. Cross, 450 feet south and 731 feet east of the northwest corner of the F. H. Cross tract out of the R. Honeycutt Survey, No. 623. Duffey and others' No. 1 W. E. Hill, 750 feet south and 150 feet east of the northwest corner of the M. Mudgett Survey No. 63. Humble Oil & Refining Co.'s No. 18 A. W. Armstrong, 967 feet south and 700 feet west of the NE cor., Section 1, Juan Delgado Survey No. 785. Humphrey Brothers' No. 9 H. A. Newton, 250 feet north and 150 feet west of the southeast corner of the H. A. Newton tract out of the R. Mitchell Survey No. 141. J. Warren and others' No. 2 W. C. Duff, 150 feet north and 1,216 feet east of the southwest corner of the W. C. Duff 63.3-acre tract out of the R. Honeycutt Survey No. 623.

Callahan County

Bradstreet & Holden's No. 13 J. A. Miller, 850 feet south and 200 feet west of the NE cor. NW, Section 98, Comal County School Land. Bradstreet & Holden's No. 14 J. A. Miller, 150 feet south and 200 feet west of the NE cor. NW, Section 98, Comal County School Land. A. Breman's No. 1 J. O. Hall, 150 feet north and east of the SW cor. N half SE of the W. W. Wood Survey No. 228. T. S. Holden and others' No. 1 J. L. Cavanaugh, 150 feet south and 600 feet east of the northwest corner of the south 51 acres of the E half, Section 98, Comal County School Land.

Clay County

American Refining Co. Properties' No. 2 American Refining Co. Properties, 150 feet south and 1,100 feet west of the NE cor., Section 65, Bacon Subdivision.

Coleman County

Canyon Oil & Gas Co.'s No. 1 J. A. Baker, 150 feet north and east of the southwest corner of the J. A. Baker 47-acre tract (shown as Tyler heirs) out of the Johann Faxell Survey No. 83. Atlantic Oil Producing Co. and Midsun Oil Co.'s No. 1 C. Moneyhun, 150 feet north and east of the southwest corner of the northeast 40 acres of the SW, Section 10, Block 1, G.H.&H. Survey. Brown and others' No. 1 H. A. Turner estate, 3,300 feet north and west of the southeast corner of the Robert Wilson Survey No. 334. Step & Vandevetter's No. 1 C. E. Shore, 440 feet south and 1,010 feet east of the NW cor., Section 72, Block 1, G.H.&H. Survey. Taylor-Link Oil Co.'s No. 1 R. W. Huddleston, 100 feet north and 150 feet east of the SW cor. NE, Section 105, E.T.R.R. Survey.

Cooke County

Lloyd Oil Corp.'s No. 2 D. B. Wheelock, 150 feet south and east of the northwest corner of the south 20 acres of the east 40 acres of the C. Underwood Survey, A-1,073. Kewanee Oil & Gas Co.'s No. 17 R. J. Timmis-A, 725 feet south and 150 feet west of the northeast corner of their 80-acre lease "A" out of the E.T.R.R. Survey No. 5, A-363. Shell Petroleum Corp.'s No. 4-A H. L. Dennis, 500 feet north and 150 feet east of the southwest corner of their 47-acre lease out of the T. J. Hutchinson Survey A-484.

Eastland County

Conway Brothers and Champion's No. 3 Maud Simmons, 900 feet south and 450 feet east of the NW cor., Section 27, McLennan County School Land, League 2. Arab Gasoline Corp.'s No. 1 J. Phillips, 200 feet north and 300 feet east of the SW cor. NW, Section 15, Block 4, H.&T.C. Survey.

Howard County

Moody Oil Corp.'s No. 11 Dora Roberts-E, 1,650 feet south and west of the NE cor., Section 136, Block 29, W.&N. W.R.R. Survey. Peck and others' No. 1 J. A. Scrivener, 2,440 feet south and east of the NW cor., Section 12, Block 33, T-2-S, T.&P. Survey.

McCulloch County

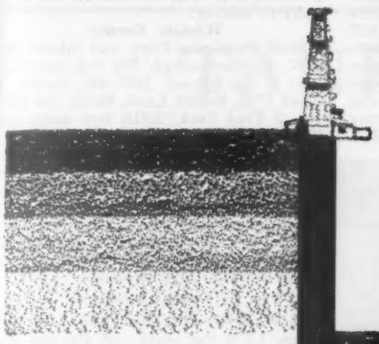
Roth & Faurot's No. 2 M. C. Smith, 4,780 feet north and 2,300 feet east of the southwest corner of the L. Eckhardt Survey No. 1,293.

Mitchell County

Republic Production Co.'s No. 1 W. T. Scott and others, 330 feet north and east of the SW cor., Section 20, Block 17, S.P.R.R. Survey. Wilson Brothers and others' No. 1 I. L. Ellwood, 330 feet south and west of the NE cor., Section 54, Block 18, S.P.R.R. Survey.

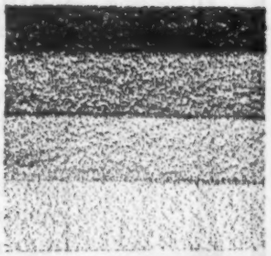
Runnels County

Pure Oil Co.'s No. 1 H. Giesecke (core test), 12,231 feet south and 367 feet east



DEEPER *and* DEEPER *and* DEEPER

Axelson pumps go . . . without the slightest slight to *dependability*



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of the northwest corner of the James Hughes Survey No. 227. Pure Oil Co.'s No. 2 H. Giesecke (core test), 12,015 feet south and 945 feet east of the northwest corner of the James Hughes Survey No. 227. Pure Oil Co.'s No. 3 H. Giesecke (core test), 11,656 feet south and 1,269 feet east of the northwest corner of the James Hughes Survey No. 227.

Shackelford County

Campbell & McDonald's No. 1 W. P. Newell, 750 feet north and 150 feet east of the southwest corner of the east 100 acres of the northeast 200-acre square of Section 11, Block 11, T.&P. Survey. Frizzell & Smalley's No. 2 J. B. Matthews, 450 feet north and 150 feet west of the SE cor. SE, Section 56, Block 10, E.T.R.R. Survey. Roeser & Pendleton's No. 3 W. I. Cook-A, Section 88, 1,152 feet north and 1,516 feet east of the SW cor. NW, Section 88, Block 10, E.T.R.R. Survey. Same company's No. 1 B. S. Walker, 150 feet northwest of the southeast line and 450 feet northeast of the southwest line of Section 382, T. E.&L. Survey.

Stephens County

Prairie Oil & Gas Co.'s No. 3 R. Q. Lee, 300 feet south and west of the NE cor. SW, Section 3, Blk. 4, T.&P. Survey. Cranfill & Reynolds' No. 2 J. P. Morris, 570 feet south and 150 feet east of the NW cor., Section 64, Block 6, T.&P. Survey. Swensondale Oil Corp.'s No. 35 P. Swenson, 465 feet north and 580 feet east of the most southerly SW cor., Section 3, Orphan Asylum Land. Texas Pacific Coal & Oil Co.'s No. 3 Mrs. S. A. Pierce, 1,300 feet south and 400 feet west of the NE cor. SW, Section 45, Block 6, T.&P. Survey.

Ward County

Atlantic Oil Producing Co. and Delmar's No. 2 S. F. Hayzlett, 150 feet northeast of the southwest line and 150 feet southeast of the northwest line of the southeast 160 acres of the northeast 320 acres of Section 17, Block 5, H.&T. C. Survey.

Wichita County

Gulf Production Co.'s No. 4 S. Mitchell and others, 1,050 feet south and 150 feet east of the northwest corner of the east 105.5 acres of John T. Lewis Survey, A-460. E. P. Bowen's No. 1 S. S. Fassett, 150 feet south and 92 feet east of the southwest corner of the J. Bradford Survey A-27, and located in Section 2, H. &G.N. Survey, A-543. W. H. Hammon's No. 8 S. Mitchell and others, 1,350 feet south and 525 feet east of the northwest corner of the J. T. Lewis Survey A-460. Hammon & Garrett's No. 14 S. H. McCarty-C, 450 feet south and 825 feet east of the northwest corner of the east 40 acres of the west 100 acres of the north 117 acres of the W. R. Eaves Survey A-447. King Royalty Co.'s No. 4 J. F. Boyd, 750 feet south and 150 feet west of the northeast corner of Lot 12, J. T. Lewis Survey A-462. Newton Oil Co.'s No. 1 H. C. Obenhaus, 150 feet north and west of the southeast corner of the west 24.6 acres of the north 37.6 acres of Section 327, Waggoner Colony Subdivision. Panhandle Refining Co.'s No. 4 T. L. Burnett and others-A, 150 feet north and 450 feet east of the SW cor. NE SE, Section 6, S.A.&M.G. Survey, A-464. Riner & Bailey's No. 3 Mrs. N. Michie-B, 150 feet south and 189 feet east of the northwest corner of the south 25 acres of the N. Michie 104.6-acre tract out of the L. Netherly Survey A-240. Ven-Mex Oil Co.'s No. 18 J. L. and T. J. Waggoner, 242 feet south and 2,030 feet east of the northwest corner of Lot 2, Section 2, G.C.&S.F. Survey, A-772. Same company's No. 19 J. L. and T. J. Waggoner, 150 feet north and 500 feet west of the southeast corner of Lot 9, Section 2, G.C.&S.F. Survey, A-772. Wilson Drilling Co.'s No. 5 Kemp & Kempner, 150 feet north and east of the SW cor. NW, Section 57, Kemp Wichita Valley Land.

Wilbarger County

J. B. Baker and others' No. 1 W. T. Waggoner-H, 150 feet north and east of the SW cor. E half SW, Section 22, Block 4, H.&T.C. Survey. Golding-Cochran and others' No. 1 W. T. Waggoner-J, 150 feet north and east of the SW cor. NW SE, Section 17, Block 4, H.&T.C. Survey.

Winkler County

Shell Petroleum Corp. and others' No. 6 W. F. Scarborough, 330 feet north and west of the SE cor. NW SE, Section 1, Block C-22, School Land. Skelly Oil Co.'s No. 2 Fred Leck, 2,310 feet north and 330 feet east of the SW cor., Section 22, Block 26, School Land. Southern Crude Oil Purchasing Co.'s No. 3 T. G. Hendrick T-88-CX, 2,310 feet north and 330 feet west of the SE cor., Section 21, Block 26, School Land. Tidal Oil Co.'s No. 1 W. F. Scarborough, 330 feet south and east of the NW cor. SE SE, Section 1, Block C-22, School Land.

Young County

C. W. Boller and others' No. 1 G. Williams, 1,776 feet south and 450 feet east of the NW cor., Section 155, T.E.&L. Survey. L. W. Callender's No. 1 G. B. Hamilton, 750 feet north and 950 feet east of the southwest corner of the G. B. Hamilton 350-acre tract out of Section 3,401, T.E.&L. Survey. G. A. Gifford's No. 1 R. H. Miller, 1,400 feet north and 900 feet east of the southwest corner of Lot 4, A. Rohus Survey A-240. G. A. Gifford's No. 2 R. H. Miller, 600 feet north and 500 feet east of the southwest corner of Lot 6, A. Rohus Survey A-240. G. A. Gifford's No. 3 R. H. Miller, 100 feet north and 1,250 feet east of the southwest corner of Lot 6, A. Rohus Survey A-240. G. A. Gifford's No. 4 R. H. Miller, 150 feet north and 1,000 feet east of the southwest corner of Lot 6, A. Rohus Survey A-240. G. A. Gifford's No. 5 R. H. Miller, 200 feet south and 550 feet east of the northwest corner of Lot 7, A. Rohus Survey A-240. Perkins & Butler and others' No. 1 J. W. Whitt, 150 feet south and west of the northeast corner of the east 30 acres of the J. W. Whitt 109-acre tract out of Section 160, T.E.&L. Survey. Steed & Gaus' No. 16 L. A. Snider, 2,640 feet south and 870 feet west of the northeast corner of the Robert Wilson Survey A-1,276. E. W. Walton and others' No. 4 E. R. Prideaux, 450 feet north and east of the southwest corner of the north 37 acres of the west 80 acres of the E. R. Prideaux 126-acre tract out of the S. Tynes Survey A-274.

Crane County

Gulf Production Co.'s No. 64 J. T. McElroy, 2,102 feet south and 1,980 feet west of the NE cor., Section 201, Block F, C.C.S.D.&R.G.N.G.R.R. Survey.

Corrections

In Brown County: Lloyd Oil Corp.'s No. 1-A J. C. Collier (formerly No. 21), 1,260 feet east of the Fort Worth & Rio Grande right of way and 150 feet south of the north line of the J. C. Collier 320-acre tract out of the Hrs. William A. Smith Survey No. 139.

In Eastland County: Goodwin and others' No. 3 J. V. and R. A. Parker, 1,010 feet north and 194 feet west of the southeast corner of the J. V. and R. A. Parker 25-acre tract out of the W. Van Norman Survey. G. P. Mitcham and others' No. 1 E. A. Winge, 150 feet south and east of the NW cor., Section 70, Block 3, H.&T.C. Survey.

In Erath County: Fletcher & Moore's No. 1 Cage & Malloy, 2,900 feet north and 435 feet east of the southwest corner of the Josiah Bishop Survey, being 312 feet north and 435 feet east of the SW corner of the Cage & Malloy 25-acre tract. Frazier-Watson and others' No. 1 E. B. Blanton, 30 feet south and 660 feet west of the northeast corner of the south half of the northwest of the Indianola R.R. Survey No. 14.

In Fisher County: Mid-Kansas Oil & Gas Co. and Phillips Petroleum Co.'s No. 1 H. J. Stephenson, 1,800 feet south and 330 feet west of the NE cor., Section 26, El Paso County School Land, League 317.

In Shackelford County: M. Best and others' No. 1 J. M. Isenhower, 170 feet north and 160 feet west of the southeast corner of the west half of the J. M. Isenhower 640-acre tract out of the N. R. Brister Survey.

In Stephens County: Hanlon Gasoline Co.'s No. 1 L. F. Grimes, 330 feet south and 1,200 feet west of the NE cor., Section 3,394, T.E.&L. Survey.

TANK CARS OF ALL TYPES

"PRESSED STEEL'S" McKees Rocks plant is equipped with the most modern machinery for manufacturing tanks and underframes and also has complete facilities for producing truck frames, bolsters, wheels, springs, forgings, castings, etc., under direction of engineers and shop supervisors who have had many years experience in building tank cars and making car parts, thus saving extra profit that otherwise goes to outside part manufacturers.

When in the market let us have your inquiry. We will be glad to submit proposition on our design or on customer's design of car.

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Applying diamond substitutes to Discs in the B.J. Plant.

B·J·Disc Bits cut more hole per dollar invested! *The records prove this.....*

Putting more *endurance* in Disc Bits, by *specially-applied* HARD FACING

The B.J. patented Marcelled Discs offer increased cutting area on edges. Plain and staggered Discs also available, hard-faced and specially heat treated.

By the application of hard facing and diamond substitutes to B.J. Disc Bits in the B.J. Plant, heat treatment is applied *after* the bits are dressed, permitting scientific rehardening of the product. Experienced welders work to definite standards. The product is uniform in structure and application of hard-facing. Abrasion resistance is developed to a high degree.

B.J. Disc Bits are being adopted by the leading operators in the most active rotary fields because these improved discs are digging more hole with fewer changes. For instance, at Kettleman Hills one company drilled 42,000 feet within four months with B.J.'s.

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Wilson Underreamers (Improved and Perfection Standard)
Wilson Rotary Drive Bushings
Wilson Oil Screen Pipe
Willard Circulating Heads
B.J. Rotary Disc Bits
B.J. Craig Disc Bits
B.J. U. S. Disc Bits
B.J. Plain Tool Joints
B.J. Anti-friction Joints.
B.J. Drill Collars
B.J. Fishtail Bits
B.J. Anti-friction Pipe Collars
B.J. Plain Kelly Subs
B.J. Anti-friction Kelly Subs
B.J. Centrifugal Pumps
B.J. Rock Bit Cones
B.J. Rock Bit Side Reamers
B.J. Craig Pump Pistons
B.J. Pep Pump Pistons
Wilson Pump Pistons
B.J. Pump Liner Pullers
B.J. Pump Valve Seat Pullers
B.&M. Flow Nipples

CENTRAL WEST FIELDS

(Continued from Page 76)

and W. S. Harris has a 3-bbl. well in No. 5 W. T. Harris, Section 13.

INDIANA

One of the interesting developments in the wildcat areas of Indiana is the Packard Oil Co.'s test on the Henry Devillez farm, Section 18, Troy Township, Perry County, between Troy and Tell City, which will be drilled to the McCloskey sand, the deepest known pay sand along the Ohio River in extreme southern Indiana Should the McCloskey formation develop a paying well it will mean much for deeper drilling across the Ohio River in the northwestern part of Kentucky, where one well was drilled a few years ago and found a small showing in that formation. In the old eastern Illinois areas, especially in Lawrence County, this sand was a heavy producer, and the sand was named after the farm owner as it was a new producing formation at that time and much resembles the Gordon sands of Pennsylvania and West Virginia.

While the Mich-Ohio Oil & Gas Co., of Toledo, Ohio, drilled a dry hole last fall south of Francisville, in Pulaski County, in the extreme western part of the state, others will make an attempt to find commercial production as three locations have been staked out and drilling will soon start. One of the wells will be drilled on a desirable looking location about 5 or 6 miles west of Francisville and another just at the south edge of Francisville, not far removed from the two old wells drilled in the village limits more than 25 years ago that are both still showing oil. One is on the church lot and the other close to a residence across the street. The Mich-Ohio Co.'s well was about 1½ miles south and a little west of the two old wells, but when the Trenton was reached around 900 feet fresh water was found in the sand, which means that some of the old wells in that vicinity were not properly plugged when abandoned, letting in the fresh water that no doubt ruined what was at one time a remarkable territory at comparatively shallow depths. The third location has not yet been staked. Between Francisville and Winamac, in Pulaski County, is some ideal looking territory to develop, providing the fresh water has not reached that point, and no doubt one of the three tests will be drilled in that section of Pulaski County.

Marshall County

Several months ago the Arco Oil & Gas Co. drilled a wildcat well near Plymouth, in Marshall County, to the northeast of Pulaski County, on the Frank Lawson farm, where considerable gas was found, and it still has a strong flow of gas. This bunch of leases has been taken over by S. E. Boys, W. B. Mikel and others and further test work will be done at once.

The wildcat venture of E. M. Treat on the William Walters farm in Section 35, Pidgeon Township, Warrick County, got a showing of oil at 1,178 feet and was given a shot, but it is so small it will not pay to put it on the pump.

Pike County comes to the front with a good oil field in a test drilled by Charles A. Taliaferro Jr. 400 feet from the north line and 1,300 feet from the west line of the Della Kime, Lot 12, Clay Township, which topped the sand at 1,227 feet and at 8 feet in the sand produced 30 bbls. initial, which makes it the outstanding development for that part of Indiana. In Washington Township, same county, the same party drilled a test 1,340 feet from the south line and 1,320 feet from the west line of the Aaron George, in the northwest quarter of Section 29, topping sand at 1,070 feet and at 9 feet in the sand the well produced a gas flow of 800,000 feet.

In Perry Creek Township, Vigo County, the Siosi Oil Corp.'s No. 3 on the Iley Williams, Section 32, is good for 75 bbls.

In Spencer County, the Packard Oil Co.'s No. 3 in the northwest corner of L. Carlton, in the SW Section 10, Huff Township, is a dry hole at 477 feet. Same company's No. 4 on the Ray farm, Section 11, same township, is reported good for 10 bbls.

State Supervisor's Report

T. M. Kingsbury, for a number of years connected with the Indiana Geological Department of Indiana, resigned his position and has taken a position with a consulting geologist firm in New York City.

Paul F. Simpson, who has been appointed State Gas Supervisor, Department of Conservation, Division of Geology, Indianapolis, has compiled the following developments of oil and gas over Indiana:

Delaware County—A well was started on the Harley DeMoss farm by F. E. Reckow, and was still drilling when last heard from. It is located in Section 36, Liberty Township.

Gibson County—The Indiana Oil & Gas Co. purchased the Manahan leases, and has put the No. 1 Manahan to pumping. When this well first came in it was reported as having 2,000,000 feet of gas. The Shell Petroleum Corp. completed No. 1 George Allen in Section 22, Columbia Township. This tested 4,361,000 feet, which comes from the Brown sand at a depth of 1,430 feet. The Texana Oil Co., which is drilling deeper in the Dave Hutchinson No. 5 in Section 13, Center Township, was fishing at 1,690 feet. The R. F. Lindy well in Washington Township, which was drilled by Fred Hillis, was abandoned and plugged. The Shell Petroleum Corp.'s No. 1 J. Schlump was completed at a depth of 1,702 feet, but it was full of water and was plugged. The Texana Oil Co. struck a gas sand at 1,676-1,682 feet in the William Volkman well in Section 32, Center Township. This was shut in with production estimated at 2,500,000 feet. No report has been received from the No. 1 Paul White, which was being drilled last winter by Mann & Huber. Randall and Rogers plugged and pulled the No. 2 J. Williams in Section 5, Barton Township, at a depth of 1,402 feet. A slight showing of oil was reported at 1,398 feet. A month ago the Ohio Oil Co. was drilling at 1,037 feet in the No. 1 J. A. Woods in Section 4, Union Township, but no report of completion has been received. (This well came in a dry hole at a depth of 1,779 feet).

Greene County—The well drilled by Fletcher, Mosier & Co. on the B. A. Rose (Goose Pond) farm, Section 3, Stockton Township, was completed and abandoned as a dry hole at 2,191 feet.

Jasper County—One of the three Francisville tests is to be made near the county line, west of Francisville.

Jay County—At the present time the Oscar Currant well near Red Key is giving 3 bbls. per 24 hours under steady pumping.

Johnson County—J. W. Hensley is just commencing drilling at 2,440 feet in the McQuiston well after a year's inactivity. The Universal Development Co. will carry this down to 2,600 feet, over 1,500 feet below the top of the Trenton.

Marshall County—W. B. Mikel, S. E. Boys and others have taken over the Arco Oil & Gas Co. and plan to drill another well near Plymouth. A strong flow of gas is still coming from their well on the Frank Lawson farm.

Morgan County—J. N. Godsey's well on the William Swier farm, Madison Township, is near the bottom of the Trenton at 1,462 feet. A slight show of gas was found at 1,196 feet.

Perry County Play

Perry County—A field force from the Eastern Gulf Oil Co. is carrying on work preliminary to drilling on its leases. The Wood Oil Co. of Kentucky has a rig on location in Section 5, Anderson Township. J. H. McClurkin and W. S. Hughes are moving on a location in Section 6, Anderson Township, where they intend to test four sands. The C. E. Daugherty & Co. of Owensboro is moving a rig to a lease north of the Devillez well. They will also drill an offset to the new Carlton well. The Vans Oil Co. of Tell City has suspended

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operations at 800 feet. The Perry Oil & Gas Co. was recently incorporated in Tell City to develop leases near Troy. The Crispen rig in Section 27, Clark Township, is shut down at 800 feet. The Packard Oil Co. well on the Henry Devilles farm in Section 13, Troy Township, will be carried down to test the McCloskey sand, after having passed through four Owensboro sands. A strong flow of salt water was found in the Barlow sand at 638 feet. The Glenn Brothers rig on the Mrs. Adam Glenn farm has gone 525 feet without getting a showing. This well, in Section 18, Tobin Township, is close to a structure worked out by Dr. C. A. Malott. The well being drilled on the Sarah Hammack farm in Troy Township by R. H. Seibert was abandoned at 125 feet without striking bed rock. Stinson Brothers are down 320 feet in the J. W. Jarboo well in Section 14, Troy Township, near the McCallister School House. P. E. Tichenor and others, of Evansville, Ind., are drilling a well on the Welborn farm, at the mouth of Deer Creek, and are down 330 feet. A good showing was struck in the Jett sand at 130 feet, indicating a possible structural high. This is near the old Mason well which, according to old residents, flowed enough oil when it was brought in to run across the road Hitchins and Robertson of Tulsa, Okla., are starting on the Joseph Schneider farm, 3 miles north of Tell City.

Pike County—The Southern Indiana Gas & Oil Co. is extending pipes to Vincennes, Wheatland and Washington. The Murphy Oil Co. is reported as pumping 5 bbls. from the R. M. English well in Section 26, Monroe Township. When last heard from, the Bement Gas Co. was down 830 feet in the James Fettinger No. 2 in Section 19, Patoka Township. (This well was completed at 1,026 feet, good for 150,000 feet of gas). The Texana Oil Co. will drill 3,000 feet or more in the John Ford well, Location 9, Clay Township, for a test. A slight showing of gas was found at 1,367 feet and of oil in the Brown sand at 1,430 feet. The Bement Gas Co. has moved a rig to the Aaron George farm, 3 miles east of Petersburg. The same company is moving a rig to the Dell Kime farm in Clay Township. The Illpava Oil Co.'s Neal Lindy No. 1, Section 31, Clay Township, came in with 4,000,000 feet estimated. The McRillip well in Section 24, Patoka Township, owned by the Bement Gas Co., is now a dry hole. A good gas showing was reported, but this was quickly exhausted. The Ohio Oil Co. abandoned No. 1 Rufus Morgan in Section 26, Madison Township.

Pulaski County—Three test wells are to be drilled near Francisville, one at the south edge of town, one 5 miles to the west and one not yet located.

Putnam County—Albert Smith is drilling on the S. F. Kennedy farm near Cloverdale.

Busy in Spencer County

Spencer County—Leasing activities have been busy due to the bringing in of the 40-bbl. well on the Strassel farm, about 4 miles west of Rockport. A pipe line has been laid from this well to the Southern Railroad at Rocky Hill. Gas from the Packard Oil Co.'s wells is being piped to Troy. John Sharp was down 800 feet on the Raymond Bretz farm, according to last reports. The William Bretz well in Section 3, Ohio Township, being drilled by J. Ellis and L. C. Young, was also down 800 feet. The Packard Oil Co.'s No. 2 Carlton in Section 11, Huff Township, was reported pumping 3 bbls. after being cleaned out. No. 3 Carlton is producing from a depth of 472 feet. The E. M. Treat Co. will start a well on the George Cissna farm. G. W. Randall and others will drill on the George Freshley farm, adjoining the Strassel property. The Vans Oil Co. is drilling on the F. W. Grass farm, south of the Ray farm in Section 11, Huff Township. When last heard from, the A. C. Huff well, being drilled in Section 18, Huff Township, by Ben Robinson, was down 685 feet. A rig is to be moved in on the Huppert farm near Gentryville. One other well is to be drilled in this vicinity. The Arthur Ray No. 1 in Section 11, Huff Township, is pumping 10 bbls. The Ray No. 2 and No. 4 are pumping 10 bbls. each. The G. W. Randall well on Leo Strassell's farm, Section 3, Ohio Township, is reported pumping 40 bbls. from a sand at 1,290 to 1,302 feet. Mahan and others have a dry hole at the top of the Strassel sand (1,402 feet) in the Terrel Weathholt well in Ohio Township. The well is being drilled deeper. The Ohio Oil Co. has a rig on location on the Nine Winchell farm 1 mile west of the Rockport Field.

Starke County—M. B. Wyrick is drilling on the William B. Lewis farm 5 miles south of Knox.

Steuben County—N. E. Masters is contemplating the drilling of several tests in this county.

Sullivan County—Moses McGillvary and others are drilling on the I. B. Buchamp farm, Section 15, Fairbanks Township. Bailey and Seitz have completed their well on the G. W. Buff farm, Section 4, Gill Township, and report 5 bbls. from a depth of 791 feet. Scott, Morris and Whitlock will drill on the W. E. Maple farm, Section 4, Gill Township.

Vigo County—The Siosi Oil Corp. is drilling No. 6 F. J. Williams in Section 32, Prairie Creek Township. (This well produced an initial of 150 bbls. at a depth of 2,210 feet). They have a reported production of 75 bbls. from No. 3 Illey Williams in the same township. It is rumored that other rigs are to start work in this field soon.

Warrick County—E. M. Treat's well on the William Walters farm in Section 35, Pidgeon Township, was plugged and abandoned at 1,178 feet. It was shot with 40 quarts and tested 1 bbl. of oil.

ILLINOIS

In the Allendale Field of Wabash Township, Wabash County, Illinois, the Ridge Farm Oil & Gas Co.'s No. 7 well, 1,200 feet from the south line and 1,000 feet from the east line of the W. M. Price, in the southwest quarter of Section 14, produced an initial of 50 bbls. from a total depth of 1,563 feet, or 12 feet in the sand. Mount Carmel Oil Co.'s No. 9 in the southeast corner of the F. M. Leek, in the southwest quarter of Section 1, same township, produced 15 bbls. initial from the Cisil sand at from 1,554 to 1,558 feet.

W. C. McBride, Inc., drilled a nice producer in No. 6 well, 1,120 feet from the south line and 200 feet from the west line of the A. W. Mann farm, in the southeast quarter of Section 13, Honey Creel Township, Crawford County, which produced 30 bbls. in 14 hours, then sanded up at a depth of 1,512 feet, where it also shows 1,000,000 feet of gas.

In the southwestern part of the state, in the Waterloo Field, in Waterloo Township, Monroe County, the Ohio Oil Co. abandoned Nos. 5, 6 and 7 on the C. Gummersheimer farm, Section 2. The Pure Oil Co. pulled Nos. 1, 2, 3, 4 and 5 on the John Acker Jr. farm, same section, while W. H. H. West abandoned Nos. 1, 2, 3, 4, 5, 6, 7 and 8 on the Dena Acker 81 acres, Section 11, same township.

No new completions were reported from the new field in Sugar Loaf Township, St. Clair County, where several wells are due for completion.

JOURNEY TO FIELDS OF PERSIA AND MESOPOTAMIA

(Continued from Page 78)

sia, as well as the roads, are maintained by the oil company for its own purposes, but Government and private cars, properly introduced, are permitted to use them. A brief diversion was furnished when an indispensable servant badly bruised his head by smashing his colored glasses between it and the roof of the car in which he was traveling over a rough stretch of road, and he had to be sent to the hospital at Ahwaz.

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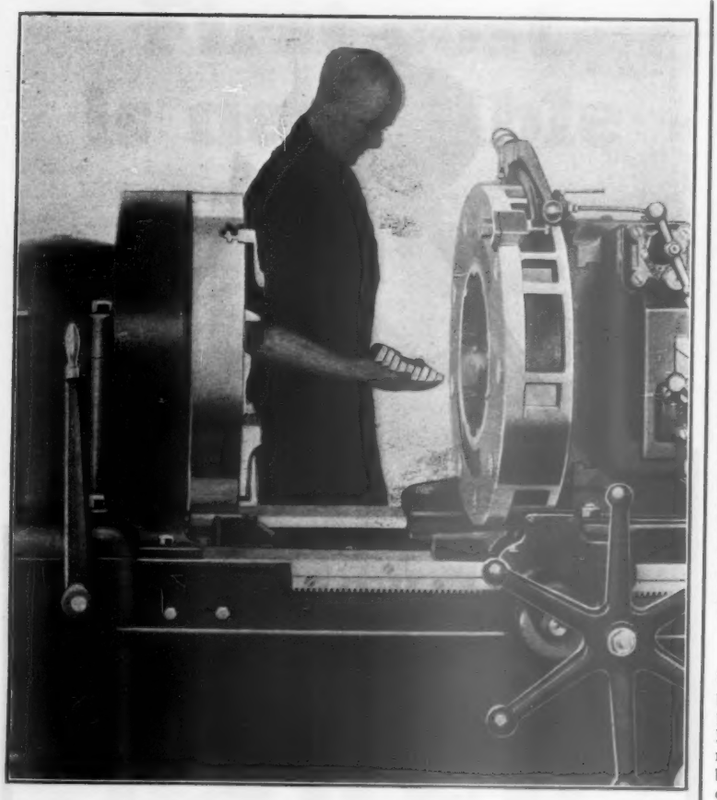

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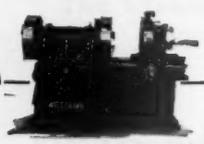

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passed through, entering the country of Bakhtiari tribes, made known to the world by the popular moving picture entitled "Grass." I was told that this town was the worst place for thieves in Persia and that the favorite outdoor sport of the street crowds was to snatch articles from passing automobiles; but, having experienced thievery elsewhere in the country, I am not upholding the comparison. Twelve miles beyond Ram-Hormuz the foothills were again climbed to enter the camp at Haft-qel, after a journey of 108 miles for the day excluding side trips. This field was named after a hill several miles distant, the only physical object in the vicinity to which a name is known to be attached.

At Haft-qel I was met by H. T. Mayo, the company's principal geologist in Persia, whom I had previously encountered on the Nairn Six-wheeler bound for Baghdad. His acquaintance with oil fields' officials paved the way for many pleasant acquaintanceships, while his intimate familiarity with the geologic and technologic conditions gave an insight into the difficulties which his company has been "up against" throughout its attempts to discover new oil fields in Persia and in developing those already opened. Many were the intricate technical discussions indulged in during the long daily drives.

Oil Headquarters

Thus, accompanied by Mayo and Strong, I again descended to the coastal plain for the journey to Fields (as the principal town in the Masjid-i-Seleiman Field is called by the oil men), only 40 miles north in an air line but 101 miles by the road that must be traversed. A direct road was then being laid out to connect with the Fields headquarters. Abandoned test areas were passed at Kandak and White Oil Springs (this name is better than the difficult Persian one), where pure gasoline is drawn and sold in small quantities from two shallow hand-dug wells. In late afternoon Dar-i-Khasineh (called "D.I.K." for short) was reached and permission was received to continue to Fields over the sometimes dangerous mountain range that a British visitor has described[2] as "like nothing so much as the innumerable ridges, peaks and hillocks, closely packed and apparently all higgledy piggledy, that a child could make by crushing a mass of tissue paper in its hands." As the northeast flank of the mountain was descended after dark, the bright lights and gas flares of the great oil field sprank upon the view, a reminder of Pittsburgh blast furnaces or some western oil camp.

Here I was at last at an acknowledged destination after having traveled many thousands of miles. The driving was now over well oiled macadam roads between rows of tasteful bungalows and comfortable quarters of the workmen, past large buildings which constitute the general offices in the fields, and I was escorted to the finely furnished bungalow where I was invited to remain the guest of C. R. Clark, the acting field manager, during my stay. No longer did the country seem to be Persia, but it was like some comfortable residence town of the United States or Europe.

Masjid-i-Suleiman is the name now given to the oil field that comprises the Maidan-i-Naftun (the old "M.I.N.") and Naftak domes and their contiguous areas. A week was spent here in technological and geological observations under the patient guidance of the company's officials, with an object of becoming familiar with its operations and the local conditions. Areas which form a part of the same general field or its expected extensions are Yamaha, Pirjah, Gach-kalaj and Zeloi, some of which are still in the prospecting stage. All of the wells and important geological features were inspected under the guidance of Mr. Clark and his acting assistant manager, Mr. Gibson, and the results and problems were discussed in the offices and laboratories.

Absorption Plants

I was surprised to find two quite up to date gasoline absorption plants in this remote field. The water supply is an excellent one, brought from the Karun River at Godar-landar, 15 miles from the Fields, and distributed to all residences and operations. The Tembi pumping station, from whence the oil is started on its flow over the two ranges of mountains which rise more than 700 feet above its elevation, was found to be quite up to date. I was shown the well-equipped chemical laboratory by Prof. W. H. Cadman, the chief chemist, and was shown the company's elaborate hospital by one of the doctors. Even the garage came in for attention and proved its worth by doing away with a bad knock in my car that had baffled the mechanics in Tehran, Isfahan, Shiraz and Bushire.

Visitors to Masjid-i-Suleiman are generally told that the oil bearing limestone, which is encountered from 1,000 to 5,000 feet below the surface in the field, outcrops at its type locality in Asmari Mountain some 20 miles southeast and almost in sight, and most persons are content with this information. Therefore my request to be taken to this great outcrop may have been considered somewhat unusual, but the locality furnished a valuable contribution to my world-wide catalog of oil occurrences and my photographic collection of seepages.

J. N. Montgomery, resident geologist, and his assistants, Mr. Falcon and others, took me in hand on this and other journeys out from Fields and a spot was reached on the Tembi River at the north end of Asmari Mountain where the oil can be seen escaping from crevices not far above the top of the limestone of the same name. Valuable light was thrown on the mode of occurrence of oil in the limestone by these and other seepages and outcrops of oil-bearing strata seen in many places in Persia too numerous to be mentioned here. Further south the limestone itself was penetrated by entering great ravines which extend back into the mountain which is 4,600 feet in altitude.

Oil Seepages

In this interesting country it may be imagined that many nontechnical and purely geographic objects of interest were given attention as well as those pertaining to oil. For instance, the ancient ruins of the Masjid-i-Suleiman (probably a Zoroastrian fire temple) were visited, as well as old sun dials and other artificial structures of antiquity. After having seen actual oil seepages in the vicinity and having learned of the immense volumes of natural gas under high pressure that are associated with the oil, it was not difficult to believe that the fire temple may have been erected on a spot where natural gas once escaped and was useful in the Zoroastrian religious rites.

On the Karun River, more than 1,000 feet below the brink of a frowning precipice down which one is conveyed by "the slide" to the source of the Fields water supply, I now satisfied my ambitions as a cinema operator by filming Bakhtiari tribesmen crossing the rapid stream on inflated goat skins. It was not far from this spot that some of the sensational scenes of "Grass" were taken by its clever producers. Actually this picture made a bad impression in Persia, and the world should not consider the scenes as being typical of that country, which has really made an effort to pull itself out of half civilized obscurity into the paths of civilization. It must be remembered that the scenes depicted in "Grass" are not peculiar to Persia but are representative of a belt of country nearly 2,000 miles long extending from southern Russia across Turkey and Mesopotamia to some point in Baluchistan. The fact that the tribesmen and their families throughout this belt migrate by millions from the low plains to the plateaus every spring and return every autumn does not mean that they are culturally deficient (the Bakhtiaris constitute some of the most intelligent and most patriotic people

[2] J. W. Williamson, "In a Persian Oil Field," London, 1927, 189 pp., 25 illustrations.

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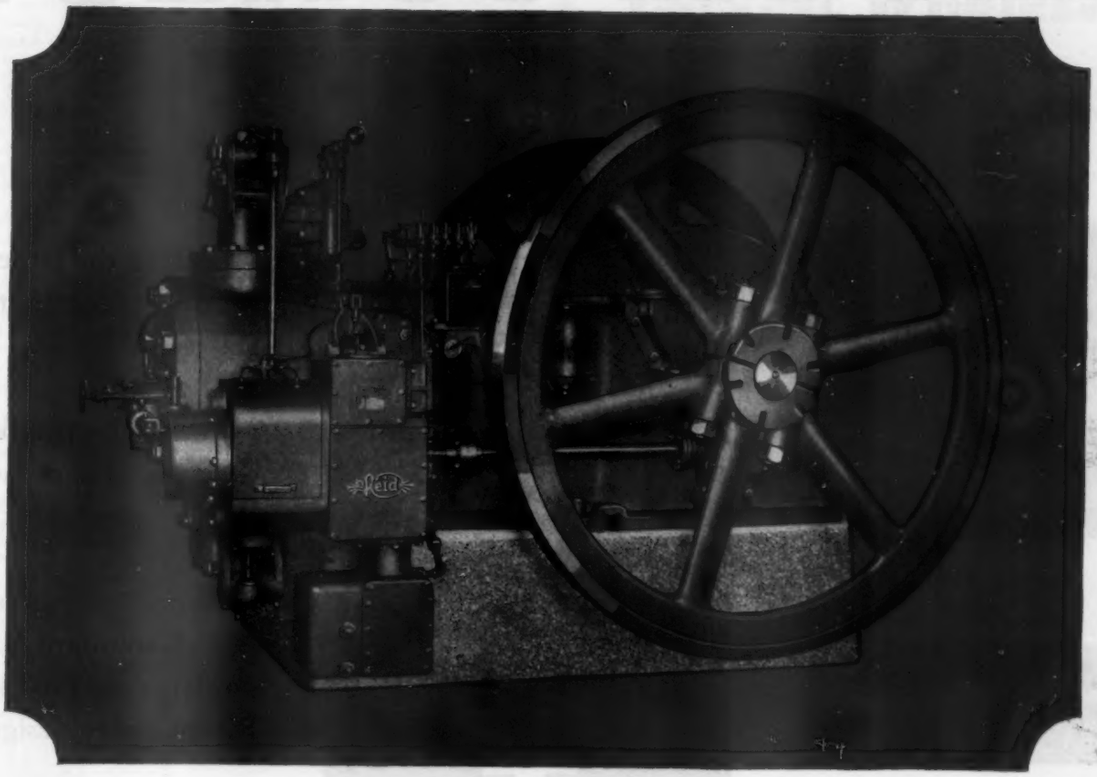

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in Persia) but that geographical conditions are such that their survival and status as sheep and goat farmers demands that the migrations be made in order to keep pace with the seasonally changing climate and changing grass.

Praises Operations

After inspecting a large proportion of the wells, and also the oil seepages, flow tank areas, pipe lines, pump stations, residences of the workers, stores, hospital, workshops, schools, etc., I had to admit that this field in the mountains of Persia is one of the best operated fields in the world. It should be borne in mind that the drillers are here thousands of miles from any supply company store and that the necessary equipment or tools for any abnormal job can not be obtained on order until after an elapse of many months, so that a full supply of all articles which might be needed must be kept in stock and all repairs must be made in the company's field machine shops. If, during developments, wells are drilled more slowly, if expenses run higher and if less sensationalism is apparent at critical stages in the operations than is the case in most American fields, it may be partly for the abovementioned reason and partly owing to the cautious British policy in which, not "safety first" but "safety all of the time" might seem to be the slogan. That the expenditures of time and money are generally justified is apparent from the fact that accidents are few, that wells are ordinarily "brought in" without losing a drop of oil and that nearly all of the wells are in due course carried down to the oil bearing limestone.

This article is not intended as a commentary on the operations of a particular company and it is not its province to discuss technical matters. I may add as a matter of interest, however, that Anglo-Persian Oil Co. was one of the first systematically to conserve its gas at a high pressure by entirely eliminating drilling in the gas reservoir area occupying the center of the domes. A visit to the geological and chemical laboratories convinced me that the geological, geophysical, chemical, geochemical and subsurface work are being conducted with an eye to the best methods in vogue elsewhere in the world. The problems of the "flow zones" in the Middle Fars series of oil field strata have caused a vast amount of work in the Persian fields and have been successfully overcome in many cases.

Temperature Trying

Living and working conditions at Fields are difficult. The mountainous wilderness lying behind Masjid-i-Suleiman and other oil fields in Fars and Arabistan is as rough and dangerous as are many parts of South America, and more than one area exists in which the wild Lurs and certain other tribes have not permitted the geologists to conduct explorations. Added to this, the summer temperature reaches more than 120 degrees Fahrenheit in the shade throughout several months; and Shustar, only 25 miles due west of Fields on the Karun River, has a reputation of being one of the hottest places in the world. My opinion, after visiting the country, is that geologists and operators have done well even to live in the country for long periods of time, to say nothing of the delicate task of maintaining friendly relations with the natives and conducting the work with the technologic excellence that has generally characterized it.

As I was given permission to take photographs in the field my cinemas and stationary cameras were kept busy. They even did not miss the trained firemen who serve as traffic cops, with their uniforms of khaki and shorts; and the habit of the men of briskly saluting every passing automobile was a reminder of the Shah's chauffeur in Tehran, saluting as he turned a sharp corner at 40 miles per hour.

In a British company it is natural to find that a majority of the organization are Britishers, but some Americans remain in the capacity of drillers and in special work. I had the pleasure of encountering several men whom I had pre-

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viously known in Wyoming or the Mid-Continent. The most noticeable feature of the personnel may be the culture of the field force, for in this remote oil camp it is not uncommon to find a college graduate handling the drill or a son of nobility working in the office.

The return from Masjid-i-Suleiman to Dar-i-Khasineh, at the head of navigation on the Karun River, was made, in company with a geologist, over the company's narrow gauge railroad, 37 miles in length. At Dar-i-Khasineh my automobile was found waiting and we drove into Ahwaz, 40 miles distant, a historic city on the plains of the Karun. Here I was guest of D. M. Faure of the oil company, but much time was spent in company with C. J. Carroll, chief engineer of the Persian Government railroad that is under construction from Bandergaz on the Caspian Sea to the promising new port of Hormosa in the south. A trip of half a day was made with Mr. Carroll, who was there at the time in charge of the work for W. P. Poland, Director General of Railways, to inspect the grading which had been completed by his engineers for about 50 miles to the southeast. After a conference with one of the Ministers of the Government, who happened to be in Ahwaz, I proceeded along the pipe line to Mohammerah, 80 miles distant. This quadruple pipe line transports the crude oil from the Masjid-i-Suleiman Field to large refineries at Abadan, on the Shatt-el-Arab (river) 135 miles from Fields.

EASTERN FIELDS

(Continued from Page 75)

has a duster at his second test on the David Smith farm.

In Butler district, Hancock County, Jesse Miller has completed a test on the Fredrick Campbell farm. It is a gasser in the Berea grit. In the same district, John J. McIntosh is drilling on the Freshwater heirs' farm. In Grant district, Ritchie County, the Burk Oil & Gas Co. has a light pumper in the Salt sand at No. 104 on the H. Mount tract. In the same district, the Hudson & New York Petroleum Co. has a duster at a second test on the Jacob Schrader farm.

On Broad Run, Washington district, Pleasants County, the South Penn Oil Co. has completed and shot in the Cow Run sand No. 18 on the S. Delong farm. It is a 2-bbl. pumper. On Dunkard Creek, Clay district, Monongalia County, the Carnegie Natural Gas Co. drilled through the Fifth sand, at a total depth of 3,123 feet, a second test on the Susan and Amy Ammons farm. It is a light gasser.

In Union district, Wood County, the Economy Oil Co.'s No. 3 on the Alex Gribble farm is a light pumper. In Williams district, Lett Stephenson and others have a light gasser on the Mary H. Fair farm.

In Grant district, Ritchie County, D. C. Lynch has completed in the Big Injun sand No. 10 on the Caroline Storrs farm. It is good for 30 bbls. a day. In Chapmanville district, Logan County, the Hope Natural Gas Co. completed in the Salt sand a gasser on the Frank Barker farm.

West Virginia Tests

In Church district, Wetzel County, the Manufacturers Light & Heat Co. has started to drill on the Elizabeth McHenry farm. The same company is drilling deeper its second test on the William Renner farm. In Clay district, the Pittsburgh & West Virginia Gas Co. is drilling on the Lula L. Clarkson farm. In Liberty district, Marshall County, the Woodruff Oil & Gas Co. is drilling a second test on the H. Ernest farm. In Cameron district, Guy Patterson has started to drill on the Mrs. Della Reese farm. In Liberty district, F. J. Watson is due in the Gordon sand on the Loudenslager heirs' farm. In McClellan district, Doddridge County, J. W. Johnson is fishing at 1,348 feet on the Selina C. Craig farm.

In Troy district, Gilmer County, the Carnegie Natural Gas Co. is hauling rig timbers to a location on the J. W. Rymer farm. In Union district, Ritchie County,

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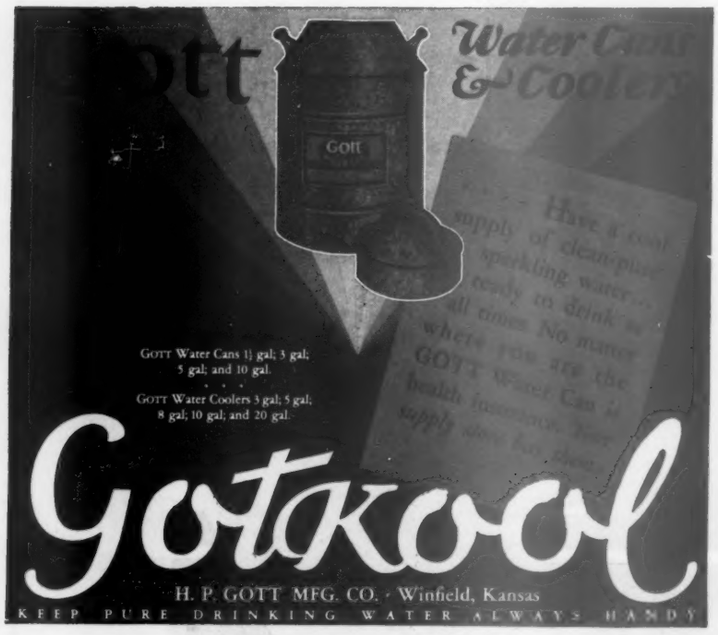
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the Pittsburgh & West Virginia Gas Co. has started to drill on the J. E. Pierce farm. In Church district, Wetzel County, the Carnegie Natural Gas Co. is hauling rig timbers to a location on the J. D. Bartrug farm. In Grant district, Ritchie County, B. C. Deem has started to drill on the Samuel Ratfield farm. In Murphy district, Park Bowser has started to drill on the W. R. Baker 48 acres.

In Sherman district, Calhoun County, the Hope Natural Gas Co. has a rig completed on the Hagan Barr farm. In the same district, Godfrey L. Cabot has started to drill on the W. T. Rafferty farm. In Williams district, Wood County, Riggs & Reynolds are drilling on the John C. Russell farm. In McComas district, Cabell County, the United Fuel Gas Co. has started to drill on the J. J. Perry farm. The same company is drilling on the H. C. Swann farm. In Curry district, Putnam County, the Charleston-Dunbar Gas Co. has started to drill on the Addison Wiseman farm.

In Union district, Tyler County, Hess and others are rigging up at a second test on the Homer Hess farm. In Sherman district, Calhoun County, the Virginian Gasoline & Oil Co. has made a location on the Amanda Elliott farm and building a rig on the E. and L. Proudfoot farm. In the same district, Clem S. Morris & Co. have made a location on the Sarah E. Kersey farm. In Sheridan district, G. L. Cabot has made a location on the L. F. Morrison farm.

In Harvey district, Mingo County, F. H. Yates is drilling tests on the J. L. McManars and D. K. Vance farms. In Scott and Washington district, Boone County, the Owens Bottle & Machine Co. is drilling tests on the J. W. Chambers and B. S. Ballard farms.

SOUTHWEST PENNSYLVANIA

In Richhill Township, Greene County, the Manufacturers Light & Heat Co. has a gasser in the Salt sand on the W. B. and E. V. Hicks farm. In Aleppo Township, the same company has completed a test on the Samuel Chambers farm. It is a fair gasser in the Gordon sand.

In Aleppo Township, Greene County, the Manufacturers Light & Heat Co. started to drill on the J. S. McCormick farm, and the rig is completed for No. 2. The same company is drilling on the A. and S. E. Rutan farm. In Springhill Township, M. W. Bissett has drilled to a depth of 2,900 feet on the T. J. Bissett farm and shut down.

In West Deer Township, Allegheny County, Barbary & Hardt are drilling on the Fred Backhais farm. In Fawn Township, the Reserve Oil & Gas Co. has a rig up on the John Dawson farm. In Buffalo Township, Butler County, the T. W. Phillips Gas & Oil Co. is drilling on the John Plants farm. The same company has the rig completed for No. 3 on the W. C. McFarlan farm. In Finley Township, James Coventry is drilling on the E. L. Oles farm. Work at this well has been delayed on account of a fishing job.

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J. H. M'EVOY DIES

HOUSTON, Tex., May 18.—J. H. McEvoy, pioneer Gulf Coast oil operator and perhaps better known as the founder and head of the oil well screen manufacturing company which bears his name, died at his home here following an illness of pneumonia. Mr. McEvoy took part in the early booms at Spindletop, Batson, Sour Lake and Humble previous to 1906, when he became engaged in the manufacture of well screen and field equipment.

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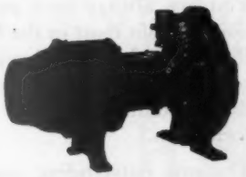

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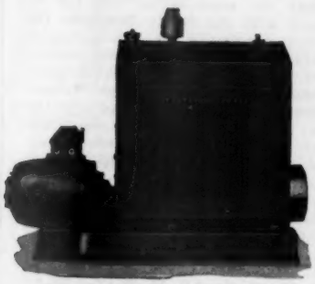

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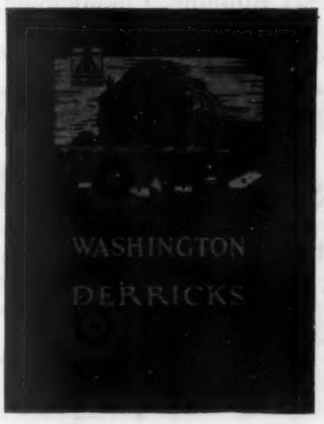

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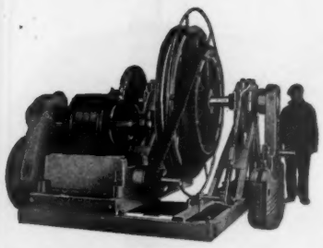

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ALBERTA ASSOCIATION ORGANIZED AT CALGARY

CHATHAM, Ontario, May 18.—Alberta oil operators have organized the Oil and Gas Association of Alberta at Calgary, succeeding the Oil Operators Association at Calgary. Branches will deal with marketing, brokerage, refining, production, exploration and natural gas. Although the organization will not be affiliated with the Rocky Mountain Oil and Gas Association, it will assist in the arrangements for the annual convention of the latter association at Calgary in September. E. B. Coolidge, former president of the Montana chapter of the Rocky Mountain association, Secretary Walter Brittan and O. I. DeSchon attended the organization of the Alberta association.

The board of directors of the Alberta association includes J. H. McLeod, John I. McFarland, W. S. Herron, A. G. Spooner, O. G. Devenish, A. G. Clarke, R. J. Hutchings, Fred M. Graham, George H. Cloakey, P. D. Mellon, Floyd Huff, T. A. Link, Glen M. Ruby, Austin Lane, Clarence Moore, A. C. Galbraith, W. R. McArthur, E. H. Teagle, C. W. Winemark, W. Sterling, R. W. Wilkinson, Fred J. Filteau, E. W. Kolb, Stanley J. Davies and Sam G. Baggs. At a meeting of the directors the following officers were elected: Honorary president, J. E. Brownlee, premier of Alberta; president, W. S. Herron; secretary-treasurer, S. G. Baggs; publicity director, D. Austin Lane. The following were named vice presidents of the various departments: Production, J. H. McLeod; brokerage, A. C. Galbraith; refining, L. J. Huff; gas, P. D. Mellon; exploration, Dr. T. A. Link; marketing, C. E. Winemark.

GEOLOGICAL FIELD TRIP

SHREVEPORT, La., May 18.—The seventh annual field trip of the Shreveport Geological Society, lasting three days, will start from the Union Station at Memphis, Tenn., June 7, and will be made by bus. Heretofore those participating in these annual excursions have made the trip in their own cars, but buses will be used this year as a matter of greater convenience and in keeping the party together.

Territory between Memphis and Columbia will be covered the first day, the party spending the night at Columbia. The second night will find the party at Muscle Shoals and the third day will be consumed in going over the territory between Muscle Shoals and Tupelo, Miss., and Tupelo and Memphis. The trip will cover the Eocene, Cretaceous and Paleozoic down to the Knox Dolomite.

Geologists from the Mid-Continent States have participated in these excursions in the past and because of the study and attention northern Mississippi and west Tennessee areas are receiving now the Shreveport Society is expecting the usual quota again this year. Reservations should be made with M. W. Grimm, Tidal Oil Co., 315 Ward Bldg., Shreveport.

O. G. & E. INCREASES STOCK

OKLAHOMA CITY, Okla., May 18.—Stockholders of the Oklahoma Gas & Electric Co. have authorized increase of capital stock to $80,000,000 to protect a five-year expansion program of the company throughout the State, J. F. Owens, vice president and general manager, announced.

A block of approximately $35,000,000 in new stock will not be issued immediately, Owens said, but will be held for emergency use.

All officers and members of the board of directors were re-elected, including J. J. O'Brien, Chicago, president; Robert J. Graf, Chicago, vice president; J. F. Owens, vice president and general manager; Halford Erickson, Chicago, and George A. Davis, W. R. Emerson and T. D. Turner, directors.

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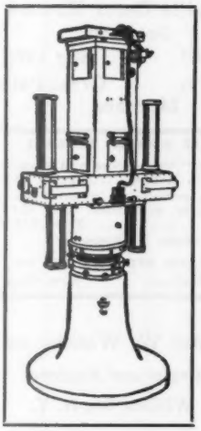

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SURVEYS
ESTIMATES OF OIL RESERVES

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Recent Patents

PUMP KNOCK-BACK INTO TOP OF TOWER

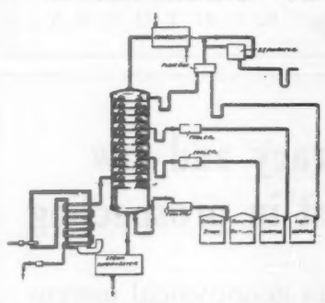
1,709,518. Process for Refining Hyrocarbons. John C. Black, Destrehan, La., and James W. Weir, Fillmore, Calif. Filed March 2, 1923. Serial No. 622,386. 7 Claims. (Cl. 196—94.)

1. The process of fractionally separating mixed hydrocarbons having different boiling points which consists in vaporizing the hydrocarbons and passing the vapors to the lower part of a fractionating tower to condense the higher boiling point fractions as the vapors rise in the tower, withdrawing from an outlet at the bottom of the fractionating tower some of the liquid hydrocarbons condensed therein and circulating the condensates back to the upper part of the tower and allowing them to flow back down through the tower, thus bringing them into intimate contact with the mixed vapors passing up through said tower and liquefying and separating from the mixed vapors as they pass up through the tower, the fractions having substantially the same composition as the circulated hydrocarbons, and refluxing the resultant excess separated and condensed hydrocarbons not used in circulation back to the still from which the mixed oil vapors were obtained.

ADD DISTILLATE TO REDUCE STOCK

1,710,240. Distillation of Lubricating Stock. Albert G. Peterkin, Jr., Bryn Mawr, William F. Stroud, Jr., Cynwyd, and Richard B. Chillas, Jr., Philadelphia, Pa., assignors to the Atlantic Refining Co., Philadelphia, Pa., a corporation of Pennsylvania. Filed April 14, 1926. Serial No. 101,857. 6 Claims. (Cl. 196—82.)

1. The method of distilling a hydro-



carbon oil characterized in that it leaves a residue of at least 20 per cent when distilled to 650 degrees Fahrenheit under an absolute pressure of 10 m.m. of mercury, which comprises admixing with the oil a petroleum distillate substantially all of which will distill below 500 degrees Fahrenheit under atmospheric pressure, rapidly heating the mixture to a temperature in excess of that at which substantial cracking of the oil would occur if the mixture were permitted to remain at such temperature for a prolonged period of time, immediately thereafter separating from that portion of the mixture which remains liquid the vapors which form as a result of the heating aforesaid, then before substantial cracking occurs, passing the liquid so separated into a zone substantially devoid of the separated vapors, and cooling it while in said zone to prevent cracking.

USE CHEMICALS TO BREAK EMULSIONS

1,710,159. Process of Treating Emulsions. Charles Fischer, Jr., Wyoming, and Warren T. Reddish, Cincinnati, Ohio, assignors to the Kontol Co., Dallas, Tex., a corporation of Texas. Filed September 2, 1926. Serial No. 133,299. 2 Claims. (Cl. 196—4.)

1. In the process of separating the oil and water of emulsions, the step of introducing therein a reagent, the constituting components of which are sludge layer mineral oil aluminum sulphonate, and sodium hydroxide.

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The vice president of one of the largest petroleum corporations in the Mid-Continent, writing to The Oil and Gas Journal, says The Journal's 1929 Survey of Petroleum Refining in the United States "is a publication of very great value to me. I have a special task that I wanted to undertake at this time, and I was puzzled to know how to get the information that would enable me to do it, and this publication furnishes completely the information I wanted."

Writing of The Oil and Gas Journal Survey of Refining, L. L. Long, of the Waverly Oil Works Company, Pittsburgh, Pa., says: "I was very fortunate in obtaining a copy at the Cambridge Springs Convention. I think it is a mighty fine statistical setup and I noticed that the copies that were available at the Convention were quickly taken up."

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Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS

Pipe Line Statement for March

Runs

Company—	Month bbls.	Dly.av. bbls.
Prairie P. L. Co.	4,619,000	149,000
Gulf P. L. Co.	1,714,368	55,302
Texas P. L. Co.	922,337	29,753
Magnolia P. L. Co.	2,196,587	70,858
Empire P. L. Co.	1,106,721	35,701
Cosden P. L. Co.	757,044	24,421
Sinclair P. L. Co.	3,162,000	102,000
Oklahoma P. L. Co.	3,043,998	98,193
Other lines*	6,262,000	202,000
Total March	23,784,055	767,225
Total February	22,978,583	820,663
Difference	805,472	53,453

Shipments

Prairie P. L. Co.†	5,880,544	189,695
Gulf P. L. Co.	1,681,189	54,232
Texas P. L. Co.	1,116,490	36,016
Magnolia Pet. Co.	2,218,572	71,567
Empire P. L. Co.	1,449,926	46,772
Cosden P. L. Co.	896,505	28,920
Sinclair P. L. Co.*	3,217,416	103,788
Oklahoma P. L. Co.	3,132,387	101,045
Other lines*	6,262,000	202,000
Total March	25,855,029	834,035
Total February	23,350,972	833,964
Difference	2,504,057	71

Stocks

	Bbls.
Prairie O. & G. Co.*	37,682,000
Gulf P. L. and Gypsy Oil Cos.	9,622,285
The Texas Company	8,349,987
Magnolia Pet. Co.	9,887,778
Empire P. L. Co.	4,148,034
Mid-Continent Pet. Corp.	3,439,639
Sinclair Crude Oil Purch. Co.*	20,572,000
Carter Oil Co.	12,450,683
Oklahoma P. L. Co.	3,263,858
Other lines*	11,775,000
Total March	121,191,264
Total February	119,111,780
Difference (see note)	2,079,484

*Estimated. †Prairie P. L. and Sinclair P. L. shipments include Texas crude oil.

Note—Prairie Oil & Gas Co. by purchase from T. B. Slick added 2,600,000 bbls. to its stocks.

Note—Stocks do not include approximately 5,300,000 bbls. of crude oil held in storage on private tank farms and leases.

EASTERN PIPE LINE REPORT

Runs from Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for February and March:

	Feb.,'29	Mar.,'29
Nat. Transit	133,165.29	181,078.06
S. W. Pa. P. L.	88,660.70	102,780.57
Eureka P. L.	308,930.88	361,950.53
Buckeye P. L. (Macksburg)	298,720.83	338,651.40
Buckeye P. L. (Cleveland)	10,466.65	11,350.63
Buckeye P. L. (Lima, etc.)	81,725.70	106,736.48
Indiana P. L.	3,645.21	5,695.98
Cumberland P. L.	173,139.79	188,917.24
N. Y. Transit	25,714.35	30,819.36
Tidewater P. L.	188,664.86	216,180.03
Pure Oil	55,790.43	60,961.13
Emery P. L.	59,159.57	64,575.89
Paragon Dev.	16,717.79	14,880.20
Stoll Oil Ref.	6,833.00	6,722.77
Total	1,451,334.95	1,681,300.27
Daily ave.	51,833.39	54,251.62

Note—Indian Refining Co. had other receipts of 305,404.33 bbls. Paragon Refining Co. had other receipts of 174,281.48 bbls. Paragon Development had other receipts of 197.81 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky for February and March:

	Feb.,'29	Mar.,'29
Nat. Transit	385,191.81	472,740.05
S. W. Pa. P. L.	334,454.56	324,198.08
Eureka P. L.	303,870.95	227,945.27
Buckeye P. L. (Macksburg)	161,417.11	173,851.61
Buckeye P. L. (Cleveland)	1,932.85	2,675.09
Buckeye P. L. (Lima, etc.)	1,100,029.84	1,398,450.19
Indiana P. L.	1,288,564.76	1,426,742.83
Cumberland P. L.	128,595.90	202,271.56
Southern P. L.	78,401.44	.....
N. Y. Transit	133,227.78	207,577.62
Northern P. L.	154,522.76	185,794.76
Tidewater P. L.	191,990.86	154,430.49
Pure Oil	58,985.39	68,193.52
Emery P. L.	69,672.20	62,136.95
Paragon Ref.	153,894.94	176,375.05
Paragon Dev.	17,084.90	17,320.04
Total	4,462,838.05	5,005,703.11
Daily ave.	159,387.06	161,474.29

Indian Refining Co. reported other deliveries of 314,483.59 bbls.

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky and Indiana at the close of February and March:

	Feb.,'29	Mar.,'29
Nat. Transit	779,918.51	731,188.54
S. W. Pa. P. L.	473,848.71	430,880.16
Eureka P. L.	1,154,081.70	1,227,449.21
Buckeye P. L. (Macksburg)	522,780.16	496,081.38
Buckeye P. L. (Cleveland)	39,875.08	53,245.56
Buckeye P. L. (Lima, etc.)	2,114,370.56	2,015,652.51
Indiana P. L.	521,024.63	517,499.27
Cumberland P. L.	573,102.52	568,233.96
Southern P. L.	446,321.17	538,367.15
N. Y. Transit	286,204.16	283,675.14
Northern P. L.	401,642.64	377,796.87
Tidewater P. L.	1,303,959.46	1,369,220.70
Pure Oil	14,136.77	8,038.47
Emery P. L.	8,672.52	12,036.26
Indian Ref.	60,203.15	52,393.15
Paragon Dev.	6,568.59	4,622.34
Paragon Ref.	21,124.63	18,740.25
Tuscarora	.....	296,936.59
Total	8,738,834.96	9,002,057.51
Increase	1,141,271.33	263,222.55

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of February and March, showing the gross stocks of the above fields:

	Feb.,'29	Mar.,'29
Pennsylvania	3,246,721.38	3,315,864.74
Lima	659,187.62	678,882.26
Kentucky	747,383.60	742,122.61
Mid-Continent	3,810,386.65	4,038,082.57
Illinois	275,155.71	227,105.33
Total	8,738,834.96	9,002,057.51

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1926	1927	1928	1929
January	55,620	56,209	52,904	51,749
February	60,394	61,298	57,002	51,833
March	61,644	63,247	57,485	54,252
April	63,019	60,927	56,812	.....
May	60,580	60,284	62,067	.....
June	61,121	62,757	58,230	.....
July	63,206	58,674	57,144	.....
August	61,815	60,870	57,745	.....
September	64,639	60,285	53,487	.....
October	161,132	147,080	58,100	.....
November	67,774	57,275	53,565	.....
December	58,755	53,089	52,025	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1926	1927	1928	1929
January	156,056	141,227	146,465	165,721
February	159,488	138,534	167,368	159,387
March	150,239	133,777	158,883	161,474
April	152,374	140,227	172,935	.....
May	160,998	144,594	180,559	.....
June	160,257	149,772	188,024	.....
July	160,045	151,350	189,470	.....
August	151,928	188,653	192,853	.....
September	158,916	144,313	194,138	.....
October	161,132	147,036	176,000	.....
November	172,608	150,975	176,898	.....
December	136,428	144,504	173,572	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1927	1928	1929
January	9,718,008	12,376,710	7,596,564
February	10,119,162	12,180,419	8,738,835
March	10,794,044	12,339,725	9,002,058
April	11,112,295	11,740,125	.....
May	11,359,381	11,602,468	.....
June	11,493,673	11,287,678	.....
July	11,468,128	10,819,331	.....
August	11,989,115	10,236,743	.....
September	12,212,716	9,660,910	.....
October	12,047,661	9,229,709	.....
November	11,939,740	8,366,553	.....
December	12,340,297	7,539,555	.....

Franklin Pipe Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above:

1928—	Runs	Shipments	Stocks
June	3,153.08	2,779.02	17,922.55
July	2,902.50	3,628.02	17,197.06
August	2,874.11	3,350.13	17,721.04
September	2,820.31	3,255.42	15,285.93
October	1,289.93	533.89	17,551.93
November	2,663.53	788.47	19,426.99
December	3,053.60	3,167.53	19,426.99
1929—			
January	2,099.90	.....	19,313.06
February	2,469.47	6,873.20	17,009.23
March	3,330.82	3,595.01	16,745.04

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, April 1	3,337,759.10
Runs from wells	700,107.14
Other receipts	310,352.09
Regular deliveries	547,544.78
Other deliveries	452,147.86

The amount of Illinois oil run by the Tidewater Pipe Co. in March was 28,212.53 bbls. Deliveries were 38,504.82 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1928—	Runs	Deliveries
April	526,013.13	448,282.44
May	632,968.64	522,980.51
June	608,552.49	625,087.33
July	612,286.49	565,678.37
August	639,074.85	671,864.02
September	570,307.91	737,293.50
October	626,147.64	626,290.40
November	576,332.88	702,589.93
December	584,633.00	491,517.26
1929—		
January	570,727.38	545,084.66
February	517,350.17	503,327.70
March	728,319.67	586,049.60

Tidewater Pipe Co., Ltd., also delivered in March 119,507.94 bbls. Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS

Average bbls. per day—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleans Port Arthur Baton Rouge	Sabine Pass	Tampa	Total	Total all ports
October	17,323	.....	11,807	6,433	.....	.....	.....	.....	.....	.....	.....	35,613
November	31,333	5,300	25,400	18,200	7,100	77,233	.....	.....	.....	.....	1,000	78,233
December	4,968	2,968	24,678	15,806	3,064	54,484	.....	.....	.....	.....	2,419	56,903
January	15,838	.....	16,676	11,838	7,938	52,290	.....	.....	.....	.....	5,161	57,451
February	14,214	.....	38,750	17,250	11,607	81,321	.....	.....	.....	.....	3,750	85,071
March	19,903	968	31,258	18,581	7,355	78,065	.....	.....	.....	.....	.....	78,065

AVERAGE DAILY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Average bbls. per day—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleans Port Arthur Baton Rouge	Sabine Pass	Tampa	Total	Total all ports
October	20,161	16,839	128,452	27,710	7,098	200,255	.....	32,226	3,065	1,612	36,903	237,161
November	18,400	16,033	133,700	30,267	8,433	206,833	1,333	37,167	4,633	.....	43,133	249,966
December	15,419	15,968	140,871	42,323	8,709	223,290	2,903	35,129	2,355	.....	40,387	263,677
January	11,936	8,903	130,065	34,871	15,709	201,484	.....	34,808	4,098	1,287	40,193	241,677
February	13,750	15,071	135,179	32,750	17,893	214,643	.....	34,357	821	142	35,321	249,964
March	18,548	26,064	145,516	39,162	28,162	257,452	.....	42,581	2,322	.....	44,903	302,355

GROSS PRODUCTION IN UNITED STATES FOR 12 MONTHS

(In barrels of 42 gallons)

1928—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
April:	Month	18,280,729	19,096,920	21,876,913	3,412,260	2,472,600	1,912,187	2,370,810	3,231,000	72,653,419
	Daily average	609,357	636,564	729,230	113,742	82,420	63,740	79,027	107,700	2,421,786
May:	Month	19,331,366	19,443,355	21,220,046	3,367,809	2,843,847	1,926,026	2,525,043	3,619,000	74,276,992
	Daily average	623,609	627,205	684,518	108,639	91,737	62,130	81,447	116,742	2,396,032
June:	Month	19,164,244	18,482,981	19,877,936	3,202,050	3,075,911	2,074,422	2,425,470	3,401,000	71,704,014
	Daily average	638,808	616,099	662,598	106,735	102,530	69,147	80,849	113,367	2,390,134
July:	Month	19,754,455	18,809,188	22,055,737	3,171,548	2,792,139	2,238,090	2,492,586	3,487,000	74,800,746
	Daily average	637,241	606,748	711,475	102,308	90,069	72,131	80,406	112,484	2,412,927
August:	Month	19,444,899	20,840,804	22,339,131	3,147,058	2,711,787	1,989,264	2,561,840	3,556,000	76,590,783
	Daily average	627,255	672,284	720,443	101,518	87,477	64,170	82,640	114,709	2,470,670
September:	Month	18,908,169	22,456,860	21,554,269	3,047,250	2,540,070	1,830,225	2,432,430	3,329,000	75,998,273
	Daily average	630,272	748,562	718,207	101,575	84,669	61,007	81,047	104,300	2,533,279
October:	Month	19,430,992	23,431,071	22,176,853	3,058,460	2,652,484	1,836,221	2,571,822	3,612,000	78,769,903
	Daily average	626,806	755,841	715,376	98,660	85,564	59,233	82,962	116,516	2,540,964
November:	Month	19,907,526	22,078,630	20,791,798	2,977,800	2,476,080	1,801,914	2,388,870	3,348,000	75,770,668
	Daily average	663,584	735,956	693,059	99,260	82,536	60,064	79,629	111,600	2,505,689
December:	Month	21,574,703	22,425,722	22,180,102	2,988,400	2,531,571	1,846,841	2,289,040	3,581,000	79,407,379
	Daily average	695,958	723,410	715,487	96,400	81,341	59,576	73,840	115,516	2,561,528
1929—										
January:	Month	23,385,939	22,417,030	23,413,192	2,861,641	2,453,526	1,807,887	2,076,070	3,379,000	81,793,285
	Daily average	754,385	723,130	755,232	92,311	79,146	58,318	66,970	109,000	2,638,492
February:	Month	22,300,707	20,448,764	20,816,209	2,557,968	2,154,194	1,569,930	1,965,656	3,122,000	74,935,428
March:	Month	24,324,729	20,838,362	24,358,592	2,951,076	2,241,734	1,756,153	2,195,823	3,563,000	83,169,369
	Daily average	784,669	672,202	784,669	95,196	72,314	56,650	70,833	113,000	2,650,633
	Total 12 months	245,808,961	250,769,637	262,659,778	36,743,320	30,935,945	22,589,160	28,295,469	41,068,000	918,870,261

4 FEATURES OF GASO PUMP, FIG. 1508

1 Main and Pinion Shaft bearings are Timken Tapered Roller Bearings.

2 Main and Pinion Gears of continuous tooth Herringbone construction.

3 H-column Connecting Rod, with babbitt-lined, removable bronze shell at crank end.

4 Pump is fully enclosed, dust-proof, and entirely self lubricated.

HERRINGBONE GEARS—For Easy Running—*and* Reduced Wear

Continuous tooth Herringbone Gears contribute greatly to the easy running and long life of our Fig. 1508 Pump. Exhaustive tests have proven such gears 98.9% to 99.4% mechanically efficient. Teeth are 60% stronger and have 20% to 40% more bearing surface.

The 30-degree helix angle secures the best condition of tooth overlap, insuring the transmission of power with uniform angular velocity. Because the load is transferred from tooth to tooth without shock, wear is reduced and vibration eliminated.

GASO PUMP & BURNER MFG. COMPANY
Tulsa, Okla.

210 Petroleum Bldg., Fort Worth, Texas

535 5th Ave., New York, N. Y.

Fig. 1508, Interchangeable Liner type Gaso Pump has capacities varying from 63 bbls. per hour at 800 lbs. pressure to 250 bbls. at 250 lbs. Can be arranged for belt or "V" rope drive, direct connected to engine through flexible coupling, or for motor drive through silent chain or reduction gears.

GASO PUMPS

for every oil industry need

WHY THEY LAST

Poles stacked uniformly on creosoted skids at the Beaumont Plant.

SOUND TIMBER

Only sound poles are treated at *International* plants. Each pole is inspected singly for its full length; if unsound in any respect the pole is rejected. Poles are removed immediately from the woods to the scientifically-prepared seasoning yard at the plant.

Increment boring being taken to check the depth of penetration.

PROPER SEASONING

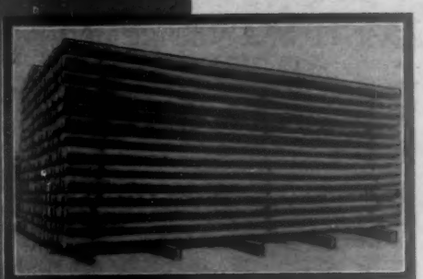
The poles are seasoned on specially built, tile-drained yards entirely free from vegetation. They are stacked on creosoted skids with thick creosoted strips between layers. The alleys between the stacks are wide and straight. The poles are under the daily supervision of expert timber men and chemical engineers. As a result *International* poles season rapidly and evenly.

Poles being stacked for seasoning on the specially built seasoning yard at Texarkana.

Graduate chemist making test on samples of creosote.

PERFECT MANUFACTURE

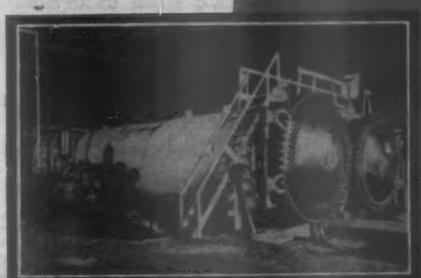
International poles are framed completely before treatment. Expert framers bore, gain and roof the poles in exact accordance with the most complex specification.



A stack of International poles produced on order for one company.

SCIENTIFIC TREATMENT

International poles are pressure treated by recommended standard processes, using only the best grade of creosote. Every modern device is used for the control and accurate measurement of temperature, steam pressure, vacuum and absorption of creosote to assure thorough and effective penetration.

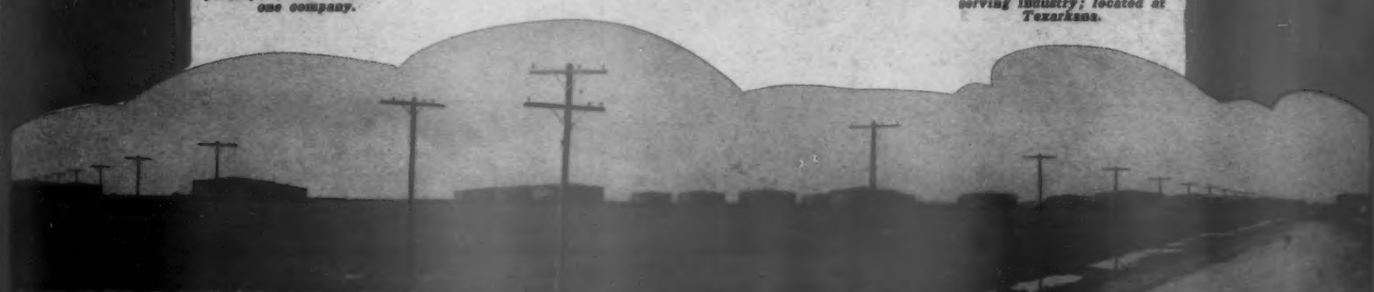


The two largest treating cylinders in the wood preserving industry; located at Texarkana.

International Creosoting & Construction Co.

General Offices—Galveston, Texas

Plants: Texarkana Beaumont Galveston



International
Creosoted Yellow Pine Poles